

**Before the
Federal Communications Commission
Washington, D.C. 20554**

In the Matter of)	
)	
Comment Sought on Competitive Bidding)	
Procedures for Broadcast Incentive Auction)	AU Docket No. 14-252
1000, Including Auctions 1001 and 1002)	
)	
)	
Expanding the Economic and Innovation)	
Opportunities of Spectrum Through Incentive)	GN Docket No. 12-268
Auctions)	

REPLY COMMENTS OF SPRINT CORPORATION

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March 13, 2015

SUMMARY

The *Comment Public Notice* is one of at least six ongoing Commission proceedings intended to build upon, enhance and complete the basic incentive auction structure framework the Commission adopted in its *Incentive Auction Report and Order* in May 2014. Sprint appreciates this opportunity to offer reply comments on auction structure, process and procedural issues identified by the commenters responding to the *Comment Public Notice*. With certain changes and refinements, the Commission can improve its Incentive Auction structure to best promote sustainable wireless broadband competition and the public benefits that flow therefrom. Commenters responding to the *Comment Public Notice* focused predominately on two overarching structural issues: (1) that the Commission will likely have to repack some remaining television broadcasters in the 600 MHz band, increasing the risk that new wireless broadband licensees and their customers will experience harmful co-channel and/or adjacent channel interference; and (2) proposed changes to either strengthen or weaken the Commission's 600 MHz spectrum reserve for bidders that do not already have robust low-band spectrum holdings or access.

As to the first issue, Sprint concurs with other commenters that the new 600 MHz blocks produced by the reverse auction and television broadcaster repacking are unlikely to be as fungible as the Commission had hoped they would be in proposing a common ascending clock forward auction structure with two generic license bidding categories each encompassing a broad range of interference risk or "impairment." The commenters overwhelmingly express doubts that the Commission's proposed mechanism to resolve any heterogeneity within bidding categories – a post-clock, linear numerical discount for each one percent of predicted impairment to the license area population – even moderately corrects for the different effects impairments can have on spectrum usability. The proposed discount does not and cannot correct for the different levels and locations of varying block impairments. For one, nearly all commenters recognize that a ten percent impairment in the heart of New York City does not have the same impact on license value as a similar impairment on Long Island. Further, the impact of impairments on license utility and value is inherently difficult to predict and depends in large part on each bidder's existing network architecture and spectrum assets.

Most commenters are clearly grappling with these impairment concerns. They have offered refinements to the proposed auction procedures that would impact to varying extents the

interrelated issues of participant certainty, the amount of spectrum that can be cleared, and the level of complexity faced by forward auction bidders. Sprint encourages the Commission to adopt 600 MHz forward auction procedures that have the greatest likelihood to promote certainty, transparency, and the best possible band plan – combining enough blocks to promote competition and sufficient unimpaired blocks to promote intensive and efficient deployment. In other words, the Commission should review and balance the benefits of producing the largest number of blocks possible for the forward auction with the benefits of producing unimpaired or only lightly impaired blocks – all while promoting bidder confidence. To be very clear, however, Sprint opposes limiting the number of forward auction blocks to the extent it could undercut the opportunity for competitive carriers with little or no low-band spectrum to acquire competitively meaningful low-band spectrum assets.

One immediate step the Commission can take to reduce bidder uncertainty is to adopt F(50,10) as its statistical measure to predict the potential for harmful interference to wireless operations. A wide range of commenters have offered support for Sprint’s Petition for Reconsideration in the related Inter-Service Interference (ISIX) rulemaking, demonstrating that F(50,10) is a far more useful measure of impairment risk to wireless broadband operations than the coarser F(50,50) measure the Commission selected. While F(50,10) would give forward auction bidders a more granular measure of harmful interference, it would not correct the problem of bidders not being able to express their individualized valuation of impairment variation among blocks within a PEA – especially in a clock auction format with such broad bidding categories.

Given these considerations, *Sprint continues to believe that block-specific bidding provides a superior means of balancing the goals of promoting competition, increasing bidder certainty, maximizing the amount of cleared spectrum and reducing forward auction complexity – all without any significant delay to the Incentive Auction.* By providing bidders full impairment information, including F(50,10) measurement, while allowing them to bid on specific blocks, the Commission would empower forward auction bidders to individually assess the usefulness and value of each block and to make their own business judgments – just as they have in all prior Commission spectrum auctions. Moreover, block-specific bidding would not unduly extend the forward auction bidding process; on the contrary, block-specific bidding will improve bidder certainty, encouraging bidders to bid aggressively without fear of the

considerable exposure risk associated with the current proposals and thus enabling the auction to meet the Final Stage Rule and close faster – without further delay for a complex assignment round. Myriad commenters expressed concern that the Commission’s proposed generic clock bidding structure, with a follow-on assignment round, will create considerable bidder uncertainty in the clock phase, prompting forward auction bidders to reduce their bidding activity or potentially prematurely drop out, resulting in lower revenue and unnecessary additional clearing stages.

As to the spectrum reserve, Sprint notes that the Commission created the spectrum reserve pursuant to its statutory mandate to devise systems of competitive bidding that promote robust competition and limit the potential for future excessive concentration of low-band spectrum holdings. The viability of the spectrum reserve has been threatened in numerous key respects by, for example, proposals to limit it to the most highly impaired spectrum, reduce the reserve’s size based on reserve bidding demand in a single, arbitrarily-selected round, or restricting the bidding flexibility of reserve-eligible bidders. In particular, the two dominant carriers see this proceeding as an opportunity to once again attempt to foreclose competitive access to low-band spectrum, through a variety of strategic and self-serving proposals to undercut the viability and effectiveness of the reserve spectrum initiative.

The Commission should resist such entreaties and instead strengthen the pro-competitive action it has already taken in creating the reserve so that the 600 MHz auction will genuinely advance the realization of long-term, robust mobile broadband competition. Accordingly, the Commission should increase the size of the reserve to 40 megahertz per PEA or half of the spectrum blocks in a PEA so as to meet the Commission’s statutory goals of preventing continued concentration of critical low-band spectrum and disseminating low-band licenses among a wide variety of applicants. It should adopt proposals that put reserve-eligible bidders on equal footing with other bidders enabling them to pursue normal bidding strategies in early rounds. In short, the Commission’s decisions in this proceeding should be guided at all times by the goal of assigning licenses for this last low-band spectrum to bidders that have demonstrated that they will use them to increase competition among mobile broadband service providers, thereby generating innovative advances, improved services and increased service choices for American consumers.

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REPLY COMMENTS OF SPRINT CORPORATION

I. INTRODUCTION AND SUMMARY

Sprint Corporation (“Sprint”) respectfully submits these reply comments addressing comments filed in response to the Federal Communications Commission’s (“FCC’s” or “Commission’s”) December 17th Public Notice (the *Comment Public Notice*) in the above-captioned dockets.¹ In its *Comment Public Notice*, the Commission sought input on its proposed rules, processes and procedures for implementing the Incentive Auction, including specific procedures for the reverse and forward auctions.

The Commission has proposed a comprehensive auction structure intended to achieve substantial broadcaster participation and thereby producing the maximum feasible number of

¹ *Comment Sought on Competitive Bidding Procedures for Broadcast Incentive Auction 1000, Including Auctions 1001 and 1002*, AU Docket No. 14-252, GN Docket No. 12-268, Public Notice (rel. Dec. 17, 2014) (“*Comment Public Notice*”).

600 MHz spectrum blocks for the forward auction.² The Commission’s decisions to date have produced a solid foundation for a two-sided auction intended to harness market forces to reallocate the 600 MHz band from television broadcast use and assign spectrum blocks to commercial wireless broadband providers.

In its initial comments, Sprint expressed concern that blocks obtained in the reverse auction are unlikely to be as fungible as the Commission had hoped they would be, largely because it may have to repack some non-selling broadcasters in the 600 MHz band, thereby creating a significant risk that commercial broadband operators may experience harmful co-channel or adjacent channel interference at certain frequencies.³ This outcome calls into question the feasibility of holding a common ascending clock forward auction with just two bidding categories reflecting rather arbitrary ranges of potential interference (*i.e.* impairment) assumed to be fungible.

Sprint explained that the Commission’s proposed solution to impairment variability, a linear 1:1 post-clock phase discount for each percentage of license-area population subject to impairment, does not overcome interference that prevents an operator from using a new 600 MHz block in places it needs to provide wireless broadband services competitive with other commercial wireless broadband providers or in response to customer demand.⁴ In other words,

² *Expanding the Economic and Innovation Opportunities of Spectrum Through Incentive Auctions*, GN Docket No. 12-268, Report and Order, 29 FCC Rcd 6567, 6574 (2014) (“*Incentive Auction Order*”). Sprint respectfully notes that it has a pending Petition for Reconsideration related to the Commission’s failure to adopt spectrum weighting in its revised mobile spectrum holdings policies related to spectrum acquisitions both through secondary market transactions reviewed under the spectrum screen and through competitive bidding.

³ Comments of Sprint Corp., AU Docket No. 14-252, GN Docket No. 12-268, at 2 (Feb. 20, 2015) (Sprint Comments).

⁴ While the proposed 1:1 discount may help to resolve differences between purportedly generic licenses in a *limited* number of circumstances (for instance, between a license that has a 3% impairment and a license that has a 5% impairment, with largely overlapping locations of their respective

the proposed discount does not correct for differing levels – and locations – of impairments affecting the usefulness of 600 MHz blocks. This disconnect between forward auction bidding premised on block fungibility, and the likelihood that the reverse auction will produce widely varying block impairments, led Sprint to propose block-specific forward auction bidding in place of the Commission’s sequential auction that couples a problematic generic block bidding phase with a complex and uncertain subsequent assignment round.

The commenters in this proceeding have predominately focused their comments on two issues: (1) that the reverse auction and remaining broadcaster repacking will cause greater and more varied risk of co-channel and adjacent-channel interference to repurposed 600 MHz blocks than the Commission anticipated in proposing generic block bidding;⁵ and (2) how the Commission should refine the spectrum reserve – including both attacks on and support for the very existence of the reserve, the size of reserve, and whether the reserve should include the least

impairments), it does not and cannot capture the true diminutions in value that impairments with varying levels, locations, and scope will cause to operators seeking to deploy wireless networks in a corresponding license area. On the contrary, the inclusion of non-fungible licenses within a bidding category *masks* the unresolved variability by preventing bidders from directly expressing their valuation of known impairments to specific blocks. This subjects bidders to the very real possibility of winning a heavily-impaired license whose post-clock price, even with the discount, is significantly above the license’s utility value. This result is particularly harmful to competitive carriers for whom the Incentive Auction is the last foreseeable chance to obtain and deploy low-band spectrum to improve their cost structure and their networks. There is no substitute for the benefits of low-band spectrum in reducing infrastructure costs, enhancing wide-area coverage and improving in-building service – especially with an industry market structure where the two largest carriers have far deeper low-band spectrum portfolios than their two national competitors.

⁵ Commenters who have studied the potential interference scenarios posed by the current proposals have uniformly called for more granular measurements of predicted interference, as well as refinement of auction procedures to mitigate the impact of such uncertainty on forward auction bidders. In this regard, Sprint’s proposal that the Commission evaluate impairment risk using the F(50,10) measurement – or at least provide that information to forward auction bidders with sufficient time to conclude their own analyses – has received strong support. *See, e.g.*, Opposition and Reply of CTIA to Petitions for Reconsideration, GN Docket No. 12-268, ET Docket Nos. 13-26, 14-14, at 4 (Feb. 26, 2016); Comments of CTIA, AU Docket No. 14-252, GN Docket No. 12-268 (Feb. 20, 2015); Reply of Competitive Carriers Association to Oppositions to Petition for Reconsideration, GN Docket No. 12-268, ET Docket Nos. 13-26, 14-14, at 2-3 (March 9, 2015); Reply to Opposition and Reply of the National Association of Broadcasters, GN Docket No. 12-268, ET Docket Nos. 13-26, 14-14, at 2-3 (March 9, 2015).

impaired spectrum blocks in a PEA. Commenters have addressed other issues as well, but these topics generated considerably more comments and more disagreement in relation to the forward auction.

Sprint offers its views of the implications of unforeseen impairment complexities and an optimum structure for the spectrum reserve in the following sections. Deciding these matters, however, turns essentially on one critical public policy consideration: that despite the current flurry of wireless retail competition, the fundamental economics of the wireless industry will inexorably produce a wireless duopoly *unless* the Commission effectively implements its statutory mandate to promote sustainable wireless broadband competition in the Incentive Auction.

Much has already been said in the Incentive Auction proceedings as to the goals the Commission should prioritize among potentially competing spectrum auction objectives. Not surprisingly, Verizon and AT&T assert that the Commission should maximize auction revenue by conducting an auction with no provisions for ensuring meaningful access to low-band spectrum for less well-capitalized bidders. These two carriers together hold almost 75 percent of all available low-band spectrum and predictably oppose any Commission efforts to give competitors lacking low-band spectrum any effective opportunity to obtain 600 MHz spectrum. In reality, Verizon and AT&T offer thinly-disguised attacks on the very existence of the reserve, with strategic proposals not merely designed to constrain (or even shrink) its size, but also reduce its utility, strategically inflate its prices, and severely delay (or even eliminate) its implementation. Rather than constructive proposals to improve the Incentive Auction structure, these efforts reflect indirect efforts to continue to foreclose competitive access to critical low-band spectrum.

Nearly all of the other non-broadcaster commenters support an Incentive Auction structure that provides competitive carriers – large or small, national, regional or rural – with a fair opportunity to win essential, high-quality low-band spectrum. The Communications Act fully supports this approach; it *does not* require the Commission to maximize auction revenues, rather, it directs the Commission to balance (and even subordinate) revenue goals with other enumerated auction design objectives, including: promoting wireless competition; avoiding excessive concentration of licenses; disseminating licenses among a wide variety of applicants; ensuring efficient use of spectrum; and encouraging the development and deployment of new technologies and services.⁶

Thus, in considering these contrasting arguments over Incentive Auction design, particularly for the forward auction, the Commission confronts a tipping point for the future of the wireless industry – and by direct extension, for the future of wireless competition in America. The Commission has already taken a step toward promoting competition and “disseminating 600 MHz commercial wireless licenses among a wide variety of applicants” by creating a forward auction reserve and proposing to place only Category 1 spectrum blocks in it.⁷ The Commission can improve and advance this initial step by, for example, increasing the reserve size to 40 megahertz per PEA or half of the spectrum blocks in a PEA, adopting procedures to

⁶ 47 U.S.C § 309(j)(3) – Design of systems of competitive bidding. As the Commission has explained, the Spectrum Act requires it to “balance several statutory objectives” and “does not preclude regulation that may serve one of these objectives more than another.” *Service Rules for the 698-746, 747-762 & 777-792 Bands*, Second Report and Order, 22 FCC Rcd 15289 ¶ 214 (2007). The D.C. Circuit has endorsed this interpretation, noting that “only the Commission may decide how much precedence particular policies will be granted when several are implicated in a single decision.” *Melcher v. FCC*, 134 F.3d 1143, 1154 (D.C. Cir. 1998).

⁷ See, e.g., *Policies Regarding Mobile Spectrum Holdings*, Report and Order, 29 FCC Rcd 6133, ¶ 66 (2014) (“*Report and Order*” or “*Order*”); *Comment Public Notice* ¶ 151.

ensure that the least impaired spectrum blocks are included in the reserve,⁸ and eliminating the uncertainties of the assignment round by adopting block-specific forward auction bidding procedures.

If the Incentive Auction were a “greenfield” spectrum auction for a new or nascent wireless industry where some carriers did not have substantial spectrum advantages over others, Sprint could support an entirely “open” auction based on the presumption that those who bid the most will make the best use of a scarce public resource. This hypothetical, however, does not reflect today’s reality. The Incentive Auction (assuming reverse auction success) will either cement the spectrum input advantage Verizon and AT&T enjoy today and thereby constrain and ultimately eliminate sustainable retail competition, or it can restore sufficient spectrum input balance to give competitive carriers a real opportunity to maintain long-term robust wireless competition and assure consumers the benefits thereof.

In addressing commenters’ concerns that larger and more varied impairments among auction blocks undercut the suitability and efficacy of generic bidding with a subsequent assignment round, the Commission’s decision should focus on promoting sustainable wireless competition.⁹ Similarly, in addressing comments on the reserve, the Commission should build

⁸ The interdependencies of the proposed auction rules offer a variety of approaches to assuring that the reserve includes spectrum blocks deployable across the most important areas of a given PEA so that winning competitive carriers obtain highly useful low-band spectrum. For example, although Sprint has favored clearing the maximum amount of spectrum to provide the most competitive opportunities, the realities of repacking could result in a choice between creating fewer blocks with little or no impairment versus the maximum possible number of blocks, but with widely varying impairment levels within and across PEAs. Sprint does not support reducing the number of blocks below the amount needed to have true opportunities for competitive carriers; on the other hand, the Commission could choose a slightly lower clearing target than the maximum possible if that lower target produced substantially superior and more homogeneous blocks.

⁹ Sprint recognizes that 600 MHz blocks in the border areas with Canada and Mexico will have unavoidable impairments from television stations in those countries pending the United States negotiating agreements with Canada and Mexico, respectively, which alleviate or mitigate such interference. Accordingly, our discussion in these reply comments (and in Sprint’s initial comments) primarily

on the pro-competitive steps it has already taken. The AWS-3 auction has demonstrated that bidding foreclosure value is a reality – not just by the two largest carriers but by well-capitalized speculators willing to pay foreclosure prices divorced from any utility value in order to amass future arbitrage opportunities.

In the following sections, Sprint elaborates on these issues and offers suggestions for mitigating the bidder uncertainty that varying impairment risk generates in an ascending clock forward auction. We also comment further on strengthening the spectrum reserve for competitive carrier bidders.

II. TREATMENT OF IMPAIRMENTS

Numerous commenters in this proceeding have expressed concern about various aspects of the Commission’s proposals to permit some television stations to remain in the 600 MHz band, resulting in impairments to the 600 MHz spectrum blocks (*i.e.*, harmful interference to wireless broadband operations in those blocks.) Sprint, for example, indicated that its greatest concern with the Commission’s proposed auction design is that in the presence of impairments, bidders will simply not know what they are bidding on because the Commission proposes to auction only “generic” licenses within two broad license categories based on predicted impairment levels using a coarse F(50,50) statistical measure.¹⁰ Other commenters observed that the effect of the Commission’s proposed procedures will be to engender considerable

addresses the existence of, and consequences of, impairment risk to 600 MHz channels resulting from repacked or remaining domestic television t stations.

¹⁰ Sprint Comments at 11. As Sprint explained, forward auction bidders must have accurate information on the levels of impairment that will exist in the spectrum blocks being auctioned based on the more accurate F(50,10) statistical measure, as well as an effective means to process this information, express bids based on it, and respond to the apparent valuation of this information by rival bidders in the context of bidding. In some instances, bidders may be more tolerant of impairment within a block and in other instances they may have no tolerance for impairment.

forward auction uncertainty, reducing forward auction bidding activity (potentially with premature drop-outs), and necessitating additional stages for the auction to clear.¹¹

The Commission developed its proposed procedures for placing some televisions stations within the 600 MHz band so that “more spectrum can be made available in the forward auction.”¹² The Commission also developed its competitive bidding proposals – minimizing the number of bidding categories and using a sequential format – to further its goal of “speeding up” the forward auction bidding process, promote “simplicity” for forward auction bidders, and reduce the amount of time reverse auction participants would need to wait on the outcome of the forward auction.¹³ While these goals unquestionably have merit, Sprint respectfully submits that the Commission’s current proposals are too complex, create unnecessary (and avoidable) bidder uncertainty, and could result in an auction that does not deliver adequate spectrum to promote robust competition among mobile broadband operators.

¹¹ See, e.g., Comments of AT&T, AU Docket No. 14-252, GN Docket No. 12-268, at 17 (arguing that the “heterogeneity of the value of the licenses” will cause suppressed bidding in the clock phase, reducing clock phase revenues and “causing failures of clearing targets” and necessitating additional auction stages) (AT&T Comments); Comments of United States Cellular Corp., AU Docket No. 14-252, GN Docket No. 12-268, at 9-10 (noting that the two-phase structure will cause bidders to prematurely “drop out of the auction” and reduce clock phase bidding activity based on expectations in the assignment phase) (US Cellular Comments); Comments of Verizon (criticizing the Commission’s bidding categories for increasing the complexity of determining the varying value of licenses due to impairments -- which it claims the discount fails to adequately account for -- and concluding that this complexity will “suppress bidding activity and forward auction prices.”) (Verizon Comments); Sprint Comments at 7 (describing the effects of forward auction uncertainty – “bidding will likely reduce demand, [bidders will] bid less aggressively, drop out prematurely and increase the likelihood of extending the auction unnecessarily to lower and lower clearing stages” -- related to unresolved heterogeneity). T-Mobile has also previously expressed precisely this concern with a two-stage forward auction and presciently foresaw the effect this would have on lower spectrum clearing. See Reply Comments of T-Mobile, GN Docket No. 12-268, at 56 (March 12, 2013) (“Bidders facing two auctions rather than one will reduce their primary forward auction bids based on their expected activity in the follow-on auction. Reduced primary auction bids will decrease the amounts offered to broadcasters to relinquish spectrum, which, in turn, will decrease the amount of spectrum to be cleared for mobile broadband.”).

¹² *Comment Public Notice* ¶ 32.

¹³ See *Comment Public Notice* ¶¶ 144, 147, 10.

Sprint encourages the Commission to adopt 600 MHz forward auction procedures that have the greatest likelihood to promote certainty, transparency, and the best possible band plan – combining enough blocks to promote competition and sufficient unimpaired blocks to promote intensive and efficient deployment.¹⁴ The comments filed by potential forward auction participants overwhelmingly reveal that all parties are grappling with the same issues related to impairments: virtually every stakeholder has offered refinements to the proposed auction procedures that, to varying extents, have effects on the interrelated issues of participant certainty, the amount of unimpaired spectrum that can be cleared, and the level of complexity faced by forward auction bidders. Sprint continues to believe that block-specific bidding provides the best method of achieving – and balancing – these objectives, without any significant delay to commencing the auction; in fact, this approach has the potential to accelerate completion of the forward auction. Below, Sprint addresses a number of related – and alternative – refinements that ultimately reflect the same overall concern with the treatment of spectrum impairments in light of the importance of providing bidder certainty, maximizing the utility value of repurposed spectrum, and avoiding undue bidding complexity.

A. Calculation of Impairment Risks

In its Petition for Reconsideration and its comments, Sprint argued that the Commission's proposed utilization of the F(50,50) statistical measure would generate tremendous uncertainty about the true relative value of blocks both *within* a single bidding category and *across* bidding categories.¹⁵ As Sprint explained, the use of F(50,50) would increase underlying heterogeneity

¹⁴ This can alternatively be formulated as balancing the goals of maximizing the amount of spectrum to promote competition and maximizing the utility of repurposed spectrum so as to promote intensive and efficient deployment.

¹⁵ See Petition for Reconsideration of Sprint Corp. GN Docket No. 12-268, ET Docket Nos. 13-26, 14-14 (Jan. 22, 2015); Sprint Comments at 16.

among blocks, undermining bidder confidence in the values of specific blocks and relative values between blocks, and creating significant complexity and difficulty in assigning a valuation to a category composed of highly heterogeneous blocks sharing the same ascending clock.

Sprint respectfully observes that no commenter has opposed Sprint's Petition for Reconsideration on this issue. On the contrary, commenters in the above-captioned proceeding and in the separate proceeding related to Sprint's Petition for Reconsideration have urged the Commission to adopt the more accurate F(50,10) statistical measure for calculating predicted interference to mobile operations. CTIA notes that "[I]f the F(50,50) statistical measure is utilized, wireless providers will not be able to accurately determine the effects of interference from broadcast operations."¹⁶ Using the less accurate F(50,50) measure, CTIA continues, "could undermine valuation efforts, engender uncertainty, and threaten bidder confidence regarding the licenses available at auction."¹⁷ By contrast, CTIA argues, the F(50,10) statistical measure will enable wireless carriers to bid on licenses with greater confidence. CCA echoes these concerns, arguing that faced with such uncertainty bidders will suppress "accurate expressions of value" – or even be deterred from participating.¹⁸ CCA further notes that "the uncertain level of impairment [arising from F(50,50)] undermines the Commission's ability to properly categorize licenses" for the auction.¹⁹

¹⁶ Opposition and Reply of CTIA to Petitions for Reconsideration, GN Docket No. 12-268, ET Docket Nos. 13-26, 14-14, at 4 (Feb. 26, 2016). *See also* Comments of CTIA, AU Docket No. 14-252, GN Docket No. 12-268 (Feb. 20, 2015) (CTIA Comments).

¹⁷ *Id.* at 4.

¹⁸ Reply of Competitive Carriers Association to Oppositions to Petition for Reconsideration, GN Docket No. 12-268, ET Docket Nos. 13-26, 14-14, at 2-3 (March 9, 2015).

¹⁹ Comments of Competitive Carriers Association, AU Docket No. 14-252, GN Docket No. 12-268, at 30 (Feb. 20, 2015) (CCSA Comments).

Broadcasters share Sprint's concern with the use of F(50,50), noting the adverse effects not simply to forward auction bidders, but also the cascading effects to reverse auction participants and the success of the Incentive Auction as a whole. As NAB argues, use of F(50,50) "increases complexity and uncertainty, undermines forward auction confidence and will depress bidding" which "in turn, will reduce potential payments to broadcasters, make it more challenging to close the auction and reduce potential recovery for the Treasury."²⁰

Sprint respectfully submits that the overwhelming weight of the record illustrates that F(50,10) is the correct statistical measure for predicting impairments to repurposed 600 MHz spectrum and thus urges the Commission to adopt this measure.

B. Block-Specific Bidding Is the Optimal Way to Manage 600 MHz Block Heterogeneity and Increase Clarity, Transparency and Certainty for Both Forward and Reverse Auction Participants

The adverse effects of impairments on bidder certainty will not be eliminated solely by the Commission using a more accurate statistical measure of predicted interference. Even with accurate information, forward auction participants will encounter significant difficulty – and complexity – in assigning values to specific licenses within a category containing licenses with a wide range of impairments and yet sharing a common ascending clock. Further, as Sprint explained in its comments and noted above, the Commission's proposed post-clock impairment discount does not effectively resolve underlying variability between blocks and in certain cases could even distort bidding. The weight of the record developed herein has reinforced Sprint's belief that block-specific bidding represents the optimal way of managing heterogeneity among auctioned blocks.

²⁰ Reply to Opposition and Reply of the National Association of Broadcasters, GN Docket No. 12-268, ET Docket Nos. 13-26, 14-14, at 2-3 (March 9, 2015).

The Commission’s proposed clock auction structure, combined with broad bidding categories, has the effect of masking the degree of underlying heterogeneity among blocks within a single bidding category.²¹ With a common clock governing heterogeneous licenses, bidders cannot effectively express their value for specific block characteristics and interdependencies, nor react to the expressed values of rival bidders as regard to these characteristics – an essential component of multiple round auctions that promotes auction efficiency.

AT&T echoes precisely this concern, arguing that the undue heterogeneity arising from – and masked by – the Commission’s proposals would require bidders to “bid without knowing which spectrum blocks they may ultimately receive and what the quality of that spectrum will be.”²² The effect, AT&T concluded, will be for forward auction bidders to “discount their bids to account for the possibility that they may ultimately end up with lower quality spectrum in the assignment round,” increasing the likelihood of not achieving higher clearing targets due to failure to satisfy the Final Stage Rule.

Further, US Cellular, AT&T, Sprint, Verizon, and CTIA also question the efficacy of the Commission’s post-clock discount as a means to resolve the lack of fungibility associated with the Commission’s bidding categories.²³ While commenters almost unanimously criticize the

²¹ *Id.* at 4.

²² AT&T Comments at 17.

²³ CTIA Comments at 12-13 (describing the myriad ways in which “the Commission’s numerical, linear approach to impairment does not reflect the value of a license or the impact of impairment”); US Cellular Comments at 7-8 (noting the stark difference in value between licenses at each end of a bidding category range and concluding that the discount “would not sufficiently remedy” the exposure problem arising from heterogeneity); Verizon Comments at 7-8 (characterizing the Commission’s bidding categories as “unnecessarily complicated,” based on potentially unreliable predictions, and noting the ways in which the *location* of impairments – not just the percentage of the population impaired -- significantly contributes to the value of a license); AT&T Comments at 18-21 (claiming that the Commission’s impairment measures “do not capture the true variation in impairment among spectrum blocks” given the numerous ways in which the *location, type* (i.e. subject to exclusion zones vs. subject to interference), and arbitrarily-distinguished *ranges* of impairments “forc[e] participants to bid for

proposed post-clock discount for not adequately reflecting license value diminutions, the commenters do not offer refinements to the discount proposal that would improve its accuracy. Sprint submits that the absence of constructive refinements reflects the impossibility of crafting an administrative remedy to a significant structural problem (the underlying risk that repacking non-selling television broadcasters will undermine producing realistically generic blocks). With unresolved heterogeneity adding complexity to the attempts of bidders to generate informed valuations for categories with highly variable licenses, the simplest solution for providing bidder certainty is to adopt block-specific bidding. Block-specific bidding, along with full information about the impairments to specific blocks, will result in final clock prices that reflect bidder valuation – and thus the competitive market value – of the impairments to specific blocks.

Sprint believes strongly that there is no reason why adopting the proposed changes to block-specific bidding should delay auction commencement. With the auction still approximately one year away, the Commission has more than sufficient time to incorporate the necessary design and process modifications into its plan and auction system, particularly since block-specific bidding has been the norm in Commission spectrum auctions. Nor would block-specific bidding unduly lengthen the time necessary to complete the auction. Indeed, numerous commenters have stated that the uncertainty arising from the Commission’s current auction proposals will draw out forward auction bidding, with less aggressive bidding within stages and

heterogeneous blocks under conditions of severe uncertainty.”); Sprint Comments at 24-29 (noting the undesirability of the Commission replacing the role of auction bidding by making categorical determinations about how impairment affects value that do not reflect the complex ways in which potential impairments – owing to their varying intensity, location, geographic contiguity, and ability to be addressed post-auction – affect the value of specific licenses for individual bidders).

a higher likelihood that, as a result of discounted bids, additional clearing stages will be needed.²⁴

In short, forward auction participants will be bidding in the clock phase without any confidence that they will receive the blocks they want and at prices that reflect the competitive market values those bidders would assign to them in a more straightforward auction. By contrast, with block-specific bidding, bidders will have greater confidence and control of their bidding activity, encouraging more aggressive bids that reflect true valuations for specific licenses.

C. Reducing Heterogeneity within Categories

Notwithstanding the above discussion, if the Commission retains auctioning generic spectrum blocks within different impairment categories, the Commission should reduce heterogeneity within those categories to improve bidder information and certainty and mitigate the exposure risk of winning insufficient or undesirable combinations of items,²⁵ or alternatively the “winner’s curse” of paying more than a license’s competitive market value. Commenters differ, however, in the manner in which they believe the Commission should refine its auction proposals to address these concerns. For example, AT&T and Verizon suggest that the Commission auction a single truly generic category of licenses with no impairments except in the border areas.²⁶ Sprint agrees that this approach could largely eliminate the dislocations resulting from heterogeneity within each category; however, this outcome must be balanced against the risk of the reverse auction and repacking not producing enough forward auction spectrum to

²⁴ See, e.g., AT&T Comments at 17; Sprint Comments at 7; NAB Comments at 2-3.

²⁵ This could be done by expanding the number of categories but limiting the range of impairment levels within each category.

²⁶ See AT&T Comments at 27; Verizon Comments at 6-8.

promote the critical competition goals that should underlie and direct the Commission's auction structure decisions, as discussed above.

CCA and T-Mobile, on the other hand, propose to combine Category 1 and Category 2 into a single category under certain circumstances, further increasing the level of heterogeneity within the combined category.²⁷ Sprint strongly opposes this suggestion because it would increase rather than ameliorate bidder uncertainty within the forward auction. T-Mobile and/or CCA also propose other steps that could reduce uncertainty arising from the Commission's use of broad bidding categories by, for example, adding an additional constraint to the Commission's 20 percent nationwide weighted impairment standard that would limit potential impairments in five of the largest 10 markets.²⁸ T-Mobile similarly seeks to constrain the extent of impairments through additional conditions tied to the Commission's selection of a clearing target, for instance by requiring that any clearing target provides at least four licenses (Category 1 or Category 2) in nine of the top 10 PEAs and adjusting the nationwide impairment threshold depending on the clearing target.²⁹

These proposals offer the advantage of trying to produce larger amounts of auctionable spectrum and (to the extent they put modest constraints on the amount of impairments in major markets) protect spectrum utility. These proposals alone are not sufficient, however, to alleviate Sprint's concerns with the adverse consequences of heterogeneity in the proposed generic

²⁷ See CCA Comments at 19-20; Comments of T-Mobile USA, AU Docket No. 14-252, GN Docket No. 12-268, at 7 (Feb. 20, 2015) (T-Mobile Comments). Sprint believes this suggestion is aimed at assuring that the reserve has a full complement of spectrum blocks in the unlikely event that there are less than three Category 1 blocks in a PEA. The adverse consequences of this proposal appear to outweigh its intended benefit.

²⁸ CCA Comments at 10-12.

²⁹ T-Mobile Comments at 19-20.

category ascending clock auction. Furthermore, as discussed above, the Commission's proposed post-auction impairment discount does not sufficiently resolve the underlying differences in value caused by having blocks in the same category with widely varying levels of impairment. The vast majority of commenters share Sprint's doubts about the efficacy of the discount, as well.

D. The Commission Should Balance the Trade-offs Between Larger Clearing Targets and Reduced Impairment Levels

Sprint has argued throughout this proceeding that the Commission should maximize the amount of spectrum in the forward auction. Nevertheless, we share the concerns expressed by many of the commenters about the current proposal to permit up to 20 percent impairment on a nationwide weighted MHz-POPs basis. A Commission clearing target that results in lots of heavily impaired spectrum in critical markets is not necessarily a better solution than a band plan that offers less spectrum (but an adequate amount of spectrum to promote competition) that is less impaired.³⁰ Still, Sprint does not endorse at this time the proposals of AT&T and Verizon to permit no impairments except in the border areas because they do not provide assurance that the resulting band plan would produce sufficient spectrum blocks on a near nationwide basis to enable competitive carriers to obtain the low-band spectrum they need to be more effective, long-term wireless broadband competitors. The nature of the auction, however, is that parties will not know the initial band plan until just before the first reverse auction stage, and will not know the amount of impairment in the forward auction spectrum blocks until just before the

³⁰ For example, Sprint would be more inclined to support a 126 megahertz band plan (with ten 5+5 megahertz pairs of spectrum to be auctioned in the forward auction) that has no impairment except in the border areas as opposed to a 144 megahertz band plan that has an impairment level of 20 percent nationwide weighted MHz-POPs basis. The 126 megahertz band plan would inherently accommodate three additional TV stations in each market and, thus, should also produce spectrum blocks that overall have lower levels of impairment.

forward auction stage begins.³¹ To help address this uncertainty, in the event the Commission does not adopt block-specific bidding, Sprint generally supports T-Mobile's proposed approach to scale the permitted level of impairment to the size of the clearing target and that the Commission build its optimization framework for limiting the amount of impairments around that proposal.³²

E. Placement of Impairments

The Commission has proposed, in market variation cases where a television station must be assigned to a channel in the 600 MHz Band in order to meet a given clearing target, to assign these stations based on the goal of minimizing the loss of value due to impairments. Under the Commission's proposal, the optimization procedure could assign TV stations in the uplink portion of the 600 MHz Band in some markets, and in the downlink portion in others.³³

Throughout this proceeding, Sprint has favored a band plan that maximizes the amount of bi-directional (*i.e.*, uplink and downlink) spectrum available for auction.³⁴ Forward auction bidders that have little or no low-band spectrum in a market will need both uplink and downlink

³¹ Sprint reiterates its concern with the proposed separation of the reverse and forward auctions by only three days. As Sprint (and numerous other commenters) explained, forward auction bidders will need considerably more time to evaluate the effect of impairments on forward auction blocks. *See* Sprint Comments at 49. *See also* CTIA Comments at 15; T-Mobile Comments at 38.

³² T-Mobile Comments at 16-21. Sprint does not necessarily agree, however, that T-Mobile's proposed levels of permitted impairment (10% impairment for clearing targets greater than 84 megahertz, and 20% impairment for clearing targets of 84 megahertz or less) are the correct levels, particularly since the Commission's current proposal is to assess impairment using the F(50,50) statistical method.

³³ *Comment Public Notice* ¶ 35.

³⁴ *See, e.g.*, Letter from Richard B. Engelman, Sprint Corp., to Marlene H. Dortch, FCC, GN Docket No. 12-268 (filed Jan. 7, 2014) (supporting a band plan with frequency-division duplexing but emphasizing that any resultant band plan should maximize the amount of bi-directional spectrum in the way a time-division duplexing band plan would); Reply Comments of Sprint Nextel Corp. GN Docket No. 12-268, at 7 (June 28, 2013) (advocating the adoption of a band plan that maximizes bi-directional spectrum); Comments of Sprint Nextel Corp., GN Docket No. 12-268, at 6-7 (June 14, 2013) (emphasizing the competitive benefits of maximizing opportunities to acquire bi-directional spectrum).

spectrum to take advantage of the inherent propagation and in-building coverage benefits of the 600 MHz band. As such, Sprint generally favors an approach that balances impairments on both the uplink and downlink portions of the 600 MHz band if television stations have to be located within the 600 MHz band.³⁵ Our analysis to date, however, leads us to agree with AT&T that any necessary television stations should be put into the uplink portion of the band only as a last resort.³⁶

The Commission, AT&T, and CCA have done a good job of documenting the challenges of putting impairments in various segments of the 600 MHz band.³⁷ In general, uplink impairments are likely to impact co-channel 600 MHz base station operations over large distances; however, filters can be used at 600 MHz base stations to avoid receiver overload from nearby television stations operating on adjacent channels. Downlink impairments, in contrast, will impact co-channel device receivers over much shorter distances, but today's devices can be more easily overloaded from high powered or nearby operations on adjacent channels.

Sprint understands the difficulties that may be associated in designing 600 MHz devices to operate with DTV stations in portions of the 600 MHz downlink band in some markets and not in other markets; we believe, however, that technical solutions (such as improved receiver dynamic range and switchable filter banks or tunable filters) can be developed in the 2019-2020 network implementation timeframe to prevent both receiver overload and receiver damage

³⁵ CCA has presented an interesting "channel stacking plan" proposal that attempts to balance the placement of market variation DTV stations on an alternating basis in the uplink and then downlink, based on the anticipated design of device duplexers. CCA Comments at 6-7. CCA's proposal, however, would still result in less uplink spectrum being available than is needed, since it would first place television stations into multiple uplink channels and only put television stations onto downlink channels if necessary.

³⁶ AT&T Comments at 28.

³⁷ See, e.g., *Comment Public Notice* ¶ 35; AT&T Comments at 12-15; CCA Comments at 5-8.

concerns. We are extremely concerned, however, that there is no apparent solution – except for distance separation – for harmful interference that may be caused to 600 MHz base stations from the out-of-band emissions of television stations operating in the uplink.³⁸ As such, we disagree with the proposals offered by Verizon, US Cellular, and T-Mobile to place market variation DTV stations in only the uplink portion of the 600 MHz band.

Nevertheless, we recognize that, regardless of whether the Commission determines to put domestic DTV stations into the uplink, downlink, both the uplink and downlink, or neither the uplink nor downlink as proposed by Verizon and AT&T, it is highly likely that television stations will continue to operate in Canada and Mexico on both uplink and downlink frequencies for the foreseeable future.³⁹ Thus, because Canadian and Mexican television stations often operate near the U.S. border, 600 MHz devices will have to be designed to function with nearby TV stations on portions of the 600 MHz downlink band and 600 MHz base stations will have to

³⁸ DTV “out-of-band emissions” (OOBE) appear “in band” and co-channel to the 600 MHz base station receiver, and can only be mitigated through additional filtering at the DTV transmitter or maintaining a sufficient separation distance between the DTV transmitter and the 600 MHz base station receiver. While the Commission has proposed rules in this proceeding that would generally provide a limited guard band between television stations and 600 MHz uplink operations, it appears that harmful OOBE interference could be caused to 600 MHz base stations from DTV stations, that are compliant with the FCC’s OOBE rules and operating on channels outside the guard band, at distances of 11.5 miles from the DTV station. As such, the mere presence of a DTV station on frequencies in the uplink could jeopardize the ability of any 600 MHz base station to operate in the same market.

³⁹ We anticipate that the United States Government will attempt to negotiate revised band plans with Mexico and Canada that would move TV stations in those countries that are near the U.S. border towards the lower part of the UHF band. However, until the Incentive Auction itself is completed, and a U.S. 600 MHz band plan determined, it will be hard for the negotiating parties to target where those stations need to be moved to avoid 600 MHz uplink or downlink interference. Furthermore, it is not clear at this point regarding the timeline, regulatory requirements, and potential funding source that would enable such moves to occur. For all of these reasons, Sprint opposes T-Mobile’s proposals to apply lower weights – and varying weights, depending on whether they originate from Mexico or Canada – to border impairments. *See* T-Mobile Comments at 26. In addition to exacerbating heterogeneity within and across bidding categories (by, for instance, re-designating a would-be Category 2 license with 37% impairment as a Category 1 license with a new weighted impairment of 14.8%), T-Mobile’s proposal cloaks in misplaced quantitative precision a set of non-quantitative (and utterly conjectural) projections about the likelihood and timeliness of abatement of foreign impairments.

be designed to operate with TV stations on co-channel and adjacent channels in the 600 MHz uplink band (provided there is sufficient geographic separation between the television station and 600 MHz base station).

Sprint does not support the Commission's proposal to place television stations using an optimization procedure that could assign those stations to any 600 MHz wireless frequency. Rather, the Commission should make every effort to place market-variation television stations on contiguous channels starting at the bottom end of the downlink bands. This would facilitate the design of filters to accommodate the placement of those stations with 600 MHz devices, in particular, but could also simplify the number of filters that might be needed for 600 MHz base stations.

Sprint also does not support the Commission's proposal to weigh impairments in the uplink portion of a spectrum block at only 50% of the overall spectrum while weighing impairment in the downlink at 100%.⁴⁰ As discussed previously, many bidders may view the uplink as more important, or just as important, as the downlink. Furthermore, we note that some wireless operators are developing plans to offer cross-band services, where the uplink is placed on the lower frequency band (to take advantage of the better propagation conditions) and the downlink is placed on the higher frequency band.⁴¹ Thus the Commission should allow a bidder to buy spectrum for either uplink or downlink (or both) without providing any assumption as to which is more valuable within the marketplace.

⁴⁰ *Comment Public Notice* ¶ 29.

⁴¹ Press Release, AT&T Inc., *AT&T Adds High-Quality Spectrum to Support Customers' Growing Demand for Mobile Video and High-Speed Internet* (rel. Jan. 30, 2015) (describing AT&T's plans to place AWS-3 spectrum into service as supplemental downlink), *available at* http://about.att.com/story/att_adds_high_quality_spectrum_to_support_growing_demand_for_mobile_video_and_high_speed_internet.html

III. THE COMMISSION MUST SAFEGUARD THE RESERVE FROM EFFORTS TO FORECLOSE COMPETITIVE ACCESS TO LOW-BAND SPECTRUM, INCLUDING BY ADOPTING REFINEMENTS THAT INCREASE RESERVE-ELIGIBLE BIDDER CERTAINTY

To avert the very real threat of dominant providers “raising rivals’ costs or foreclosing competition by denying competitors access to low-band spectrum,” the Commission adopted policies pursuant to its “statutory mandate under 47 U.S.C. 309(j)” to “ensure that the spectrum [it is] auctioning will be used to promote robust competition and to limit the potential for future excessive concentration of low-band spectrum holdings.”⁴² Specifically, the spectrum reserve established in the *Mobile Spectrum Holdings Order* is the Commission’s chosen method to safeguard “the last opportunity in the foreseeable future for providers to acquire licenses for below-1 GHz spectrum at auction.”⁴³ The Commission selected the spectrum reserve from a wide array of proposed competitive safeguards, including spectrum caps, auction-specific limits, and extension of the spectrum screen to the auction (including with potential post-auction divestitures). According to the Commission, the spectrum reserve, in contrast to other proposals, provided dominant carriers greater latitude, more certainty, and additional flexibility.

The prospect of foreclosure and the threat to long-term competition posed by continued concentration of low-band spectrum by the two largest wireless carriers represent *genuine* threats to the public interest, unambiguously established in the Commission’s Wireless Competition Reports and the record of the *Mobile Spectrum Holdings* proceeding – and emphatically affirmed in the Commission’s *Mobile Spectrum Holdings Order*. Notwithstanding the Commission’s clear determination, or the overwhelming weight of the record herein confirming these threats to sustained wireless broadband competition, AT&T and Verizon have approached this proceeding

⁴² *Mobile Spectrum Holdings Order* ¶ 45.

⁴³ *Mobile Spectrum Holdings Order* ¶ 153.

as simply another opportunity to undermine the spectrum reserve and frustrate the Commission’s statutory mandate. In its comments, Sprints noted myriad ways in which the viability of the spectrum reserve could be threatened and encouraged the Commission to adopt additional procedural safeguards to fully realize the statutory objectives it was established to achieve. These numerous, interrelated aspects of the reserve’s implementation – as well as additional facets of the reserve now seized on by AT&T and Verizon – require the Commission’s attention.

A. The Size of the Reserve Should Be Tailored to Maximize Long-Term Competition

As a proponent of spectrum caps or the extension of the spectrum screen (including spectrum weighting) to the Incentive Auction, Sprint has long been concerned with ensuring that sufficient spectrum be made available to carriers lacking competitively-critical low-band spectrum. Currently, the two dominant carriers possess nearly 75 percent of the available low-band spectrum, with nearly 80% of low-band spectrum in the Top 10 and Top 50 markets.⁴⁴ These factors exemplify “[t]oday’s mobile wireless marketplace,” which the Commission (agreeing with the Department of Justice) found to be characterized by factors that “increase the potential for anticompetitive conduct, including high market concentration, highly concentrated holdings of low-band spectrum, and high barriers to entry.”⁴⁵ With these severe threats to long-term wireless competition, Sprint supports T-Mobile’s petition asking the Commission to expand the size of the reserve to 40 megahertz, or at least half of the available spectrum in the forward

⁴⁴ The specific low-band holdings of AT&T and Verizon draw an even starker contrast to rivals: each operator has at least one 10+10 megahertz LTE channel deployed for mobile broadband as well as substantial cellular holdings that will facilitate deployment of an additional 10+10 megahertz broadband channel in the very near future. The Incentive Auction offers competitors the opportunity to obtain 10+10 megahertz channels to better compete with AT&T and Verizon.

⁴⁵ *Mobile Spectrum Holdings* ¶ 62.

auction.⁴⁶ This will increase the likelihood that multiple competitive carriers can acquire the 10+10 megahertz LTE channels necessary to effectively compete with AT&T and Verizon, without being subject to the foreclosure-value bidding of the two dominant incumbents outside of the reserve. Indeed, Sprint submits that competitive carriers' access to critical low-band spectrum is *already* severely under threat by the large number of PEAs in which AT&T or Verizon will be eligible to bid on reserve spectrum, *as well* as the likely presence of very well-capitalized speculators bidding aggressively in the reserve far beyond the utility value of the 600 MHz licenses. These threats warrant consideration of proposals to increase the size of the spectrum reserve.

Similarly, the Commission should reject AT&T's attempt to reduce the size of the reserve in non-initial clearing targets.⁴⁷ The Commission's determination that the size of the reserve in subsequent stages should reflect the size of the reserve in the initial clearing stage (provided that the stage ended with reserve-eligible demand for the maximum reserve) reflects an important public interest conclusion that the amount of spectrum available to reserve-eligible bidders should not be reduced simply because the initial clearing stage could not be closed due to factors outside reserve-eligible bidders' control. Indeed, as Sprint and numerous commenters (including AT&T) have observed, the initial clearing stage may well fail for a wide variety of factors, including less aggressive bidding from bidding category uncertainty⁴⁸, failure to include non-

⁴⁶ T-Mobile Comments at 3.

⁴⁷ AT&T Comments at 32.

⁴⁸ See AT&T Comments at 17 (describing the effect of heterogeneity on bidder certainty and valuation, increasing the risk of clearing target failure); Sprint Comments at 6-7 (noting the effects of uncertainty caused by heterogeneity within bidding categories, including "extending the auction unnecessarily to lower and lower clearing stages" due to reduced bidding activity).

high-demand PEAs for satisfaction of the Final Stage Rule,⁴⁹ and the potential for high clearing targets under the Commission’s nationwide impairment threshold to produce less unimpaired spectrum in major markets than lower clearing targets.⁵⁰

In any of these cases, the transition to a subsequent, lower clearing stage would not represent reduced demand by reserve-eligible bidders – nor would it diminish the public policy and statutory objectives that motivated the Commission to create an ample reserve. In other words, the transition to a lower clearing stage does not vitiate the fundamental purpose of the reserve: preventing continued concentration of critical low-band spectrum and disseminating low-band licenses among a wide variety of applicants. Sprint thus encourages the Commission to protect the size of the reserve throughout the auction. The Commission has already established the conditions under which the reserve can be reduced (or entirely removed): insufficient demand by reserve-eligible bidders. Factors outside the control of reserve-bidders should not provide additional mechanisms to undermine the Commission’s competition policies.

B. The Composition of the Reserve Should Enable Effective and Rapid Deployment to Promote Competition

To safeguard the reserve and ensure that operators without existing low-band holdings can efficiently and rapidly utilize 600 MHz licenses to compete more effectively, numerous commenters encouraged the Commission to include the most unimpaired licenses in each PEA in

⁴⁹ AT&T Comments at 45 (criticizing the exclusion of “licenses outside the high-demand PEAs” as increasing the likelihood of “failure of a clearing target that would have succeeded if the extended round permitted bidding on all licenses.”).

⁵⁰ *See, e.g.*, AT&T Comments at 4-5, 21-22; Haile-Kearns-Dworkin Attachment at 8 (noting that the nationwide impairment threshold “leads to very high clearing targets with less ‘auctionable’ spectrum blocks than lower clearing targets would produce,” and claiming that this “destruction of spectrum value” will contribute to failures of clearing targets); NAB Comments at 9-10 (describing the potential, due to the 20 percent nationwide impairment standard, for high-clearing targets to produce significant impairments in major markets that jeopardize the ability of a stage to close).

the reserve.⁵¹ Similarly, in severely spectrum-constrained markets, commenters encouraged the Commission to protect the viability of the reserve by supplementing the reserve’s less-impaired licenses with the least impaired Category 2 licenses so as not to penalize competitive carriers for the inability of the auction to relocate broadcasters out of the 600 MHz band.⁵²

These proposals build on the Commission’s *own* determination that reserve-eligible bidders “are likely to be more reliant on 600 MHz Band spectrum to expand coverage and to compete in the mobile wireless marketplace.”⁵³ To this end, the Commission proposed inclusion of Category 2 licenses to supplement the reserve to ensure that “market variation does not reduce the benefits to competition and consumers from providing opportunities to multiple providers to gain access to low-band spectrum.”⁵⁴

AT&T and Verizon, perhaps more than any other commenter, have catalogued the myriad ways in which impairments could frustrate effective deployment of 600 MHz spectrum. Thus, not surprisingly, these two entrenched incumbents advocate for restricting the most unimpaired licenses to the *unreserved* pool of spectrum⁵⁵ – with AT&T going so far as to call for relegation of the *most impaired* licenses to the reserve.⁵⁶ These proposals represent flagrant

⁵¹ See, e.g., Sprint Comments at 48; CCA Comments at 21; T-Mobile Comments at 6; C Spire Comments at 4; RWA and NTCA Comments at 3.

⁵² See, e.g., Sprint Comments at 48, n76; T-Mobile Comments at 7; CCA Comments at 21; C Spire Comments at 4; RWA and NTCA Comments at 3-4.

⁵³ *Comment Public Notice* ¶ 153.

⁵⁴ *Id.* at ¶ 152.

⁵⁵ See Verizon Comments at 9-10; AT&T Comments at 7.

⁵⁶ AT&T Comments at 36 (calling on the Commission to “fill the reserve allocation first with any Category 2 spectrum in the PEA.”).

attempts by AT&T and Verizon to undermine the spectrum reserve and the Commission's pro-competitive goals.

Indeed, AT&T and Verizon's comments perfectly exemplify their attempts to foreclose low-band spectrum access by competitors. Given the Commission's representation that it anticipates clearing *mostly* unimpaired or low-impaired spectrum,⁵⁷ AT&T and Verizon's proposals belie an intent to sabotage the reserve. This is especially apparent in their opposition to inclusion of additional licenses to ensure the reserve's minimum size in spectrum-constrained markets: such cases will not only represent a small number of overall PEAs; they will only impact AT&T and Verizon's access to *unreserved* spectrum in those markets *where AT&T and Verizon by definition already hold more than 45 megahertz of low-band spectrum.*⁵⁸

In spectrum-constrained markets the Commission's statutory mandate to ensure wide availability of licenses and prevent concentration is *especially* compelling. Where less 600 MHz spectrum can be cleared, the Commission should not penalize the competitors most in need of low-band spectrum, either by shrinking the reserve or provisioning it with the most impaired licenses. Nor should the Commission sympathize with AT&T and Verizon's protestations that designating the least impaired licenses in the reserve will harm them: in the vast majority of those markets AT&T and Verizon will already hold vastly more spectrum than any reserve-eligible bidder can acquire. And where AT&T and Verizon genuinely *need* more deployment-ready low-band spectrum they will, by definition, be eligible for the reserve.

⁵⁷ *Comment Public Notice* ¶ 152.

⁵⁸ In other words, AT&T and Verizon's complaints ring hollow on the negative effects such distributions would have on them. Supplementing the reserve at the cost of unreserved spectrum will not meaningfully affect AT&T or Verizon in any PEA: in most markets where reduced supply or more-impaired licenses will be all that AT&T and Verizon can bid on, each will already possess 45 megahertz or more of *existing* low-band spectrum. In markets in which they do *not* have such significant holdings, they will be eligible to bid in the reserve for the less-impaired spectrum licenses.

C. The Implementation of the Reserve Should Give Reserve-Eligible Bidders Bidding Confidence and Flexibility Equal to Other Bidders

The implementation procedures for the reserve also have important implications for the successful realization of the statutory and public interest objectives the Commission identified in establishing it. Specifically, the Commission must ensure that the competitive bidding systems it has proposed do not have the unintended effect of undermining the statutory obligations of Section 309(j): to protect and promote competition and prevent excessive concentration of licenses.⁵⁹ The implementation, no less than the initial establishment, of the spectrum reserve is critical to the success of the “once-in-a-generation opportunity [provided by the Incentive Auction] to promote competition *as specifically required by Section 309(j)*.”⁶⁰

An important aspect of the reserve’s implementation concerns its *timing*. Under the Commission’s proposal, triggering the reserve is made contingent on the condition precedent of meeting a specific revenue target. The triggering event has a substantial impact on the ability of reserve-eligible bidders to fully capitalize on the reserve: namely, the *size* of the reserve in each PEA is dependent on the amount of reserve-eligible demand for Category 1 licenses at the time the Final Stage Rule is met.⁶¹ As multiple commenters noted, however, this proposal ignores the normal historical bidding patterns of spectrum auctions. Past auctions *routinely* demonstrate that early bidding activity for *all bidders* normally clusters around larger markets for purposes of maximizing bidder eligibility.⁶² Thus, reserve-eligible bidders will have to be constantly on-guard in early rounds of the auction, fearful that at the conclusion of any given round the Final

⁵⁹ 47 U.S.C § 309(j)(3) – Design of systems of competitive bidding.

⁶⁰ *Mobile Spectrum Holdings Order* ¶ 48.

⁶¹ *Comment Public Notice* ¶ 151.

⁶² *See, e.g.*, CCA Comments at 23-24; Sprint Comments at 46.

Stage Rule could be met before they have had a chance to spread their bidding to mid- and small-markets where they also have a genuine demand for spectrum. Reserve-eligible bidders will thus be forced to park their eligibility in all markets in which they have demand, lest they unnecessarily shrink the size of the reserve in those categories. As a consequence, reserve-eligible bidders will have less bidding flexibility from the very outset of the auction, unable to – as in most auctions and like the ineligible dominant bidders -- readily switch demand across PEAs in response to changes in price and demand.

This contingent and unpredictable implementation of the reserve can produce adverse results beyond constraining the flexibility of reserve-eligible carriers *across PEAs*. As both Sprint and T-Mobile noted, the Commission’s proposed implementation rules for the reserve (based solely on demand for Category 1 licenses) will restrict the flexibility of reserve-eligible bidders to switch demand *across bidding categories* (or in the case of block-specific bidding, outside the three least-impaired licenses designated for the reserve) in response to changes in price and demand.⁶³ This not only disproportionately and unnecessarily harms reserve-eligible bidders; it actively *rewards* dominant, reserve-*ineligible* bidders by protecting them from bidding competition across PEAs and license categories.

Reserve-eligible demand should not be determined on the basis of a single auction round. Rather, as Sprint has explained, the most effective way to implement the reserve, while balancing the Commission’s numerous auction design and competition goals, is to begin the forward auction with reserve block designations in place. Reserve-eligible bidders will thus be able to clearly express their demand for reserve blocks, while also able (as in normal auctions) to focus on high-demand markets and a wide variety of licenses in early bidding rounds, shifting their demand as bidding progresses. As Sprint demonstrated, the Commission could after some

⁶³ See Sprint Comments at 46; T-Mobile Comments at 9.

lapse of time evaluate whether the supply of reserve blocks exceeds the reserve-eligible demand. If the Commission determined that bidding is not likely to reach the Final Stage Rule, it could then issue advance notification indicating that it will, in an imminent round, reduce the supply of reserve-spectrum in markets where there is insufficient demand.⁶⁴

Combined with an initial designation of the specific blocks comprising the reserve, this approach will promote bidder confidence and certainty from the beginning of the forward auction. With the flexibility to bid as in normal auctions, and an understanding of the blocks on which they are bidding, bidders would be induced to bid more aggressively. Rather than depressing revenue, this approach would most likely *increase* forward auction revenue by bolstering bidding activity.

D. The Commission Should Reject Indirect Efforts to Eliminate the Reserve and Foreclose Competitive Access to Low-Band Spectrum

The dominant operators also have proposed another way to undercut the goals of the Commission's spectrum reserve. Both Verizon and AT&T encourage the Commission to significantly increase the 'price component' of the Final Stage Rule. The Commission has proposed to tie the reserve to satisfaction of the Final Stage Rule, comprised of a 'price component' that ensures that prices for licenses in the forward auction reflect competitive values, as well a 'cost component' that ensures forward auction proceeds are sufficient to cover the costs of the auction (most notably, the costs of repurposing the spectrum in the reverse auction).

In justifying its strategic attempt to inflate the price component, Verizon brushes away the Commission's (and Department of Justice's) extensive record on the existence of foreclosure value to argue that the underlying rationale of the reserve (much less the proposed benchmark) has been undermined. To demonstrate this, Verizon asserts that "[n]either Sprint nor T-Mobile

⁶⁴ Sprint Comments at 47.

have shown that either needs substantial amounts of *additional* low-frequency spectrum.” Specifically, Verizon points to the fact that Sprint has “successfully deployed *voice* services on the 800 megahertz spectrum nationwide” and T-Mobile has a “huge swath” of 700 MHz spectrum.⁶⁵ The disingenuousness of this charge is self-evident: T-Mobile and Sprint each have a *fraction* of the low-band spectrum of Verizon, and neither has a path to a 10+10 megahertz LTE low-band channel (whereas Verizon boasts two different bands for such deployments currently). Nor does Verizon seem to acknowledge the inaptness of citing Sprint’s nationwide deployment of low-band spectrum for narrowband *voice* services when the Commission’s entire rationale for the reserve was to ensure that wider access to low-band spectrum facilitated deployment of advanced *broadband* services.⁶⁶

AT&T similarly seeks to subvert competitive access to low-band spectrum via the reserve by calling on the Commission to inflate the price component of the Final Stage Rule. AT&T ignores the Commission’s determination that the price component reflects only an effort to establish a *floor* and “not a ‘ceiling’ for the ‘competitive values’ of these licenses.”⁶⁷ In other words, the price component thus reflects an effort to ensure that reserve spectrum values help contribute to a *portion* of overall auction proceeds; it does *not* represent a price-setting method by which the Commission seeks to equalize the prices paid by bidders. AT&T’s proposed interpretation of the price component would not only represent a significant intervention into auction mechanics (something AT&T consistently opposes in other contexts). It would also fail to explain why, if the Commission were concerned with equalizing prices paid by reserve-

⁶⁵ Verizon Comments at 15 (emphasis added).

⁶⁶ *Mobile Spectrum Holdings Order* ¶ 154.

⁶⁷ *Comment Public Notice* ¶ 49.

eligible and ineligible bidders, the Commission confined the price benchmark to only the Top 40 PEAs and not all 416 PEAs.

AT&T also attempts to foreclose competitive access to low-band spectrum through indirect means. In addition to shrinking the reserve and confining impaired licenses to the reserve, AT&T also proposes undermining competitive access to reserve spectrum by conjoining the price clocks for unreserved and reserved licenses. AT&T argues that the separate clocks will allow *reserve-eligible* bidders to manipulate the auction, switching demand between reserved and unreserved licenses based on the price.⁶⁸ As a threshold matter, it is not clear why the Commission should consider this problematic – much less ‘manipulation.’ Indeed, under the Commission’s original proposal to structure the reserve with only 30 megahertz, it *assumed* that at least one reserve-eligible bidder would *have to* switch demand across the reserved and unreserved categories to potentially acquire a 10+10 megahertz combination. More fundamentally, AT&T’s proposal effectively serves as a Trojan Horse: as a pretense to preventing the (exceptionally unlikely) possibility that reserve-eligible bidders would have the resources, much less the intentions, to drive up the prices for bidders on *unreserved* spectrum, AT&T proposes a mechanism that in actuality enables reserve-*ineligible bidders* (such as AT&T and Verizon) to drive up the cost of reserve spectrum through a common clock. The Commission should reject this transparent attempt by AT&T to undermine the reserve through foreclosure strategies.

In stark contrast to AT&T and Verizon, T-Mobile and CCA have vigorously argued (including in pending Petitions for Reconsideration) that the price component of the Final Stage Rule is *too low*. Sprint submits that this stark contrast likely illustrates that the Commission

⁶⁸ AT&T Comments at 37.

struck a reasonable balance in setting the price benchmark for the price component of the Final Stage Rule.

In short, the Commission should shore up the spectrum reserve if it genuinely wants to safeguard long-term mobile broadband competition in the 600 MHz auction. This includes adopting proposals that would put reserve-eligible bidders on equal footing with other bidders. By the same token, this means rejecting nakedly anti-competitive proposals that serve only to frustrate the Commission's statutory goals of preventing continued concentration of low-band spectrum and disseminating low-band licenses among a wide variety of applicants.

IV. CONCLUSION

The *Comment Public Notice* provides the Commission with the last opportunity to build upon the “basic framework” of the Incentive Auction, soliciting input from commenters who, with the benefit of greater perspective on its “moving parts,” can now identify unforeseen complications. As Sprint has described, foremost among these unforeseen complications are reducing bidder uncertainty arising from impairments and refining the reserve to promote the statutory goals it was intended to serve. In both contexts, the Commission has the ability to substantially improve upon the Incentive Auction structure to better promote competition and enable effective and rapid deployment of 600 MHz spectrum post-auction.

Respectfully submitted,

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March 13, 2015