Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

In the Matter of	)	
	)	
Expanding the Economic and Innovation Opportunities of Spectrum Through Incentive Auctions	)	GN Docket No. 12-268
	)	
	)	
	)	

To: The Federal Communications Commission

REPLY COMMENTS OF THE CONSUMER ELECTRONICS ASSOCIATION

Julie M. Kearney
Vice President, Regulatory Affairs
Brian E. Markwalter
Senior Vice President, Research and Standards
Consumer Electronics Association
1919 S. Eads Street
Arlington, VA 22202
(703) 907-7644

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EXECUTIVE SUMMARY

Thanks to the Commission's thoughtful approach to the very complicated issues involved in implementing its incentive auction authority, the record already demonstrates an emerging consensus on many important issues in this proceeding, including the need to maximize participation, adopt simple and straightforward rules, balance the interests of all parties, and promote innovation – the same overarching, guiding principles that CEA recommended to ensure the success of the auction.

The Commission should leverage this growing consensus and build on it to move forward toward the incentive auction. The Commission should continue to work to repurpose at least 120 MHz of spectrum for mobile broadband while maintaining reasonable interference protection for incumbent services, design auction rules that promote the widest possible participation in both the reverse and forward auctions to foster the clearing of as much spectrum as possible, avoid imposing any unnecessary barriers on channel sharing, refrain from restricting reverse auction eligibility except as required by statute, and begin the international coordination process in earnest now.

The Commission also must make certain other decisions to achieve the goals of the Spectrum Act. For example, it should apply the "all reasonable efforts" repacking standard as set forth in the NPRM (including using the new *TVStudy* software to implement the methodology of OET Bulletin 69). The statute clearly articulates a standard short of mandating replication, and the Commission is correct to construe the term "reasonable" as discussed in the NPRM. Adopting the replication approach advocated by some commenters would be inconsistent with the statutory language, Congress's intent, and the public policy goals underlying the Spectrum Act.

The Commission also can bring more certainty to the auction process by clearly structuring the post-auction transition, adopting firm, specific deadlines for broadcasters to vacate the 600 MHz band, and adopting reimbursement rules that foster prompt relocation. This will free up the needed spectrum more quickly and will enable all auction participants to plan appropriately.

Finally, the Commission can build on constructive industry input to quickly reach resolution on a new 600 MHz band plan. It was extremely helpful to industry to see a detailed proposed band plan in the NPRM and to develop responses to it. As a result, general consensus on portions of the band plan has emerged. For example, many parties support the 5 MHz building block approach, using Economic Areas as the market for wireless licenses, and prefer paired spectrum with supplemental downlink. Parties also support allowing unlicensed operations in the guard bands and the duplex gap, on a non-interfering basis to adjacent licensed operations, although some commenters disagree on the appropriate amount of spectrum for such use. Given the complexity of issues at play here, however, it is not surprising that this first iteration of the band plan would prompt some ideas for improvement. Some commenters have offered modifications to the proposed band plan, including removing TV broadcast operations from, and reducing the size of, the duplex gap. The Commission should continue to work with industry to evaluate these concerns and proposals because they may reduce the likelihood of interference between TV broadcast and mobile operations, may be more feasible in terms of handset deployment, and could potentially allow the Commission to repurpose even more than 120 MHz of spectrum.

As decisions about key aspects of the incentive auction process begin to crystallize, the Incentive Auction Task Force and other Commission staff can "road test" them in various industry forums and tweak them as necessary. In some cases, further public notices and workshops may be warranted. All of this can be done in tandem with the review of reply comments so that the Commission can consider and adopt an order in this proceeding as soon as possible. CEA remains ready and eager to assist the Commission as it moves forward.

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REPLY COMMENTS OF THE CONSUMER ELECTRONICS ASSOCIATION

The Consumer Electronics Association ("CEA") hereby responds to comments filed with respect to the Federal Communications Commission's ("FCC" or "Commission") above-captioned Notice of Proposed Rulemaking ("NPRM"), which formally launched the Commission's implementation of the broadcast incentive auction provisions of the Middle Class Tax Relief and Job Creation Act of 2012 (the "Spectrum Act").[1] Thanks to the Commission's thoughtful approach to the very complicated issues involved in implementing its incentive auction authority, the record already demonstrates an emerging consensus on many important issues in this proceeding, including the need to maximize participation, adopt simple and straightforward rules, balance the interests of all parties, and promote innovation – the same overarching, guiding principles that CEA recommended to ensure the success of the auction.[2]

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[1] *Expanding the Economic and Innovation Opportunities of Spectrum Through Incentive Auctions*, Notice of Proposed Rulemaking, 27 FCC Rcd 12357 (2012) ("NPRM"); Middle Class Tax Relief and Job Creation Act of 2012, Pub. L. No. 112-96, §§ 6401-14, 126 Stat. 156, 222-36 (2012) ("Spectrum Act"). The NPRM proposes to implement relevant portions of Sections 6401 to 6414 of the Spectrum Act.

[2] CEA Comments at 12-16.

The Commission should leverage this growing consensus and build on it to move forward toward the incentive auction. Among other actions, the Commission should continue to work toward repurposing at least 120 MHz of spectrum for mobile broadband while maintaining reasonable interference protection for incumbent services, design auction rules that promote the widest possible participation in both the reverse and forward auctions in order to foster the clearing of as much spectrum as possible, avoid imposing any unnecessary barriers on channel sharing, refrain from restricting reverse auction eligibility except as required by the statute, and begin the international coordination process in earnest now, so that issue does not hinder the auction timeline.

In addition to these areas of general agreement on the record, the Commission also needs to make certain other decisions to achieve the goals of the Spectrum Act. For example, it should apply the "all reasonable efforts" standard in the manner set forth in the NPRM (including utilizing the new *TVStudy* software to implement the methodology of OET Bulletin 69). The statute clearly articulates a standard short of mandating replication, and the Commission is correct to construe "reasonable" as discussed in the NPRM. Adopting the replication approach advocated by some commenters would be inconsistent with the statutory language, Congress's intent, and the public policy underlying the Spectrum Act and the many critical actions by the Commission, the White House, and others leading up to it.

The Commission also can bring more certainty to the auction process by clearly structuring the post-auction transition and adopting firm, specific deadlines for broadcasters to vacate the 600 MHz band. This will free up the needed spectrum more quickly and will enable all auction participants to plan appropriately.

Finally, the Commission can build on constructive industry input to quickly reach resolution on a new 600 MHz band plan. It was extremely helpful to industry to see a detailed proposed band plan in the NPRM and to develop responses to it, as opposed to positing hypothetical allocations. Indeed, some areas of general consensus on the band plan have emerged as a result of the Commission's detailed discussion in the NPRM. For example, many parties support the NPRM's 5 MHz building block approach, using Economic Areas ("EAs") as the market for wireless licenses, and offering paired spectrum with supplemental downlink where paired spectrum blocks are not feasible. Parties also support allowing unlicensed operations in the guard bands and the duplex gap, on a non-interfering basis to adjacent licensed operations, although some commenters disagree on exactly how much spectrum is necessary or appropriate for such use. Given the sheer number and complexity of issues at play here, however, it is not surprising that this first iteration of the band plan would give rise to some ideas for improvement. To further Congress's and the Commission's goals, some commenters have offered a number of modifications to the proposed band plan, including removing TV broadcast operations from, and reducing the size of, the duplex gap. The Commission should continue to work together with industry to evaluate these concerns and proposals because they may reduce the likelihood of interference between TV broadcast and mobile operations, may be more feasible in terms of handset deployment, and could potentially allow the Commission to repurpose even more than 120 MHz of spectrum.

As decisions about key aspects of the incentive auction process begin to crystallize, the Incentive Auction Task Force and other Commission staff can "road test" them in various industry forums and tweak them as necessary. In some cases, further public notices and workshops may be warranted. All of this can be done in tandem with the review of reply

comments so that the Commission can consider and adopt an order in this proceeding as soon as possible. CEA remains ready and eager to assist the Commission as it moves forward.

I. EMERGING CROSS-SECTOR CONSENSUS ON KEY ISSUES PROVIDES A STRONG FOUNDATION FOR AUCTION RULES

The NPRM represents a tremendous step forward in bringing critical spectrum to market, and the Commission has done a remarkable job of addressing a wide range of issues that must be considered in this historic endeavor. As the record shows, even more remarkable is the broad consensus across so many industry sectors – broadcasters, wireless companies, equipment manufacturers, infrastructure providers, and others – in support of the Commission's groundbreaking ideas for the incentive auction process. Indeed, many commenters either directly embraced the same key principles set forth in CEA's comments as necessary to ensure a successful broadcast incentive auction (maximize participation; adopt simple and straightforward rules; balance interests of all parties; and promote innovation) or offered proposals that serve these goals.[3] Commenters generally applauded the adoption of the NPRM and encouraged the Commission to move forward to adopt rules and conduct the auction. Commenters also emphasized the need to provide broadcasters with the auction structure and incentives necessary to bring them to the table; without their participation, the Commission cannot achieve its mission here.

[3] For example, the Expanding Opportunities for Broadcasters Coalition explicitly states that its members are "broadcasters who recognize the potential value of participating in an incentive auction and are *committed to working with the FCC to develop rules that will encourage broadcaster participation and thereby facilitate the auction's success*." Expanding Opportunities for Broadcasters Coalition Comments at i (emphasis added).

With its statutory directive to free up spectrum and this developing consensus in mind, the Commission should:

A. MAXIMIZE PARTICIPATION

- Promote broadcaster participation by ensuring market value – rather than enterprise value – pricing for TV spectrum (*e.g.*, by establishing initial bid prices that "exceed the expectations of potential sellers").[4]

- Avoid imposing any unnecessary barriers on channel sharing.[5]

- Refrain from imposing restrictions on reverse auction eligibility beyond those set forth in the Spectrum Act.

- Adopt any necessary rules (or modifications to existing rules) regarding confidentiality, payment timing, and anti-collusion.[6]

- Continue outreach efforts, including visiting different parts of the country, to educate broadcasters on the opportunities associated with the incentive auction.[7]

- Refrain from imposing any restrictions on wireless carrier participation in the forward auction that would unnecessarily reduce the proceeds from the forward auction and potentially reduce the amount of spectrum cleared.[8]

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[4] *See, e.g.*, Expanding Opportunities for Broadcasters Coalition Comments at ii, 4, 8 ("[T]he only way to unleash the value envisioned by Congress in the Spectrum Act and to maximize the spectrum converted from broadcast services to mobile broadband use (at least 120 MHz) is to adopt a pricing mechanism that is designed to induce broad broadcaster participation"). Many commenters emphasize the importance of incentivizing broadcaster participation. Tribune Company Comments at 2 ("the reverse and forward auction rules should provide maximum flexibility and incentives to promote broadcaster participation"); Select Spectrum LLC Comments at 7 ("[I]f the FCC is to obtain maximum participation from station owners, then the FCC will be well advised to conduct a process that provides full information to the station owners."); Qualcomm Inc. Comments at 1; Nokia Siemens Network US LLC Comments at 7-8 ("Limited broadcast licensee participation in the reverse auction would clearly reduce the likelihood of success of the overall auction or, at a minimum, severely under deliver on its potential impact.")("Nokia Siemens Comments"); Motorola Mobility LLC Comments at 6-8; MetroPCS Comments at 4.

[5] *See, e.g.*, Expanding Opportunities for Broadcasters Coalition Comments at 20-22.

[6] *See, e.g.*, Expanding Opportunities for Broadcasters Coalition Comments at 23-24.

[7] *See, e.g.*, Nokia Siemens Comments at 7; Mobile Future Comments at 4; Alcatel-Lucent Comments at 10; Verizon and Verizon Wireless Comments at 21-22.

[8] *See, e.g.*, Expanding Opportunities for Broadcasters Coalition Comments at 4, Eisenach Decl. at 12-16; MetroPCS Comments at 16-17 (arguing that the FCC should resist any urge to impose eligibility restrictions on participation in the forward auction); Mobile Future Comments at 10-11;

B. ADOPT SIMPLE AND STRAIGHTFORWARD RULES

- Adopt procedures "simple enough not to discourage participation by even the most unsophisticated broadcasters but nuanced enough to account for the many variables inherent in the incentive auction process."[9]

- Utilize a descending clock auction with intra-round bidding.[10]

C. BALANCE THE INTERESTS OF ALL PARTIES

- Begin the international coordination process in earnest now, so that issue does not hinder the auction timeline.[11]

- Use "all reasonable efforts" to preserve coverage area and population served in repacking, as the Spectrum Act directs.[12]

D. PROMOTE INNOVATION

- Continue to work toward repurposing *at least* 120 MHz of spectrum for mobile broadband while maintaining reasonable interference protection for incumbent services.[13]

Telecommunications Industry Association Comments at 16-17; Verizon and Verizon Wireless Comments at 38-43.

[9] Expanding Opportunities for Broadcasters Coalition Comments at ii. The Coalition also suggests minimizing bidding options and complex scoring formulas. *See id.*

[10] *See, e.g., id.* at 5-6 (descending clock auction will "remove … uncertainty by shifting to the Commission the burden of establishing prices and leaving broadcasters only to decide whether to accept or decline" and could "increase participation by attracting the interest of broadcasters who assumed that their asking price would be too high."); Verizon and Verizon Wireless Comments at 27-28; Prospective Reverse Auction Participant Comments at ii, 6.

[11] *See infra* Section II.

[12] *See infra* Section III.

[13] Verizon and Verizon Wireless Comments at vi, 22-23; High Tech Spectrum Coalition Comments at 6; CTIA Comments at 30 (quoting *Letter from Ari Meltzer, Counsel for the Expanding Opportunities for Broadcasters Coalition, to Marlene H. Dortch*, FCC, GN Docket No. 12-268 (Jan. 24, 2013)); Mobile Future Comments at 1-2; Broadcaster for the Promotion of Channel Sharing Arrangements Comments at 1 ("[t]he Commission's goal of recovering 120 MHz of spectrum in the voluntary auction is aggressive but achievable"). *See also* Expanding Opportunities for Broadcasters Coalition Comments at 12 ("If nothing else, because the Commission will not know if it can clear 120 MHz until it tries, it should, consistent with Congressional expectations, establish an initial clearing goal of at least 120 MHz and only lower this goal if the target cannot be met consistent with the auction closing conditions."). Some proposed alternative band plans would allow for the repurposing of additional spectrum beyond 120 MHz.

- Auction spectrum in 5 MHz building blocks, which are most consistent with existing and developing broadband technologies.[14]

- Offer paired spectrum in the forward auction, with supplemental downlink offered where paired blocks are not feasible.[15]

- Offer EA-based licenses and package bidding as a way to enable wireless operators to aggregate spectrum within and across markets to tailor their coverage areas.[16]

- Make some spectrum available for unlicensed use as a way to encourage low-cost innovation in the band.

By adopting rules consistent with the consensus in all of these areas, the Commission will be off to a tremendous start. It can take the limited number of issues on which there currently is not consensus – several of which are discussed in Sections III, IV, and V below – and continue to work with industry in those areas to achieve the goals of the Spectrum Act.

II. THE RECORD DEMONSTRATES THE NEED FOR IMMEDIATE ACTION ON INTERNATIONAL COORDINATION

Many commenters across different industry sectors, including CEA,[17] urge the Commission to commence the necessary international coordination as soon as possible[18] and offer a variety of proposals seeking to expedite this process or accommodate international

[14] *See infra*, Section V(A).

[15] *See infra*, Section V(C).

[16] *See infra*, Sections V(A-B).

[17] CEA Comments at 33-34.

[18] *See, e.g.*, Cox Media Group Comments at 8 ("The FCC should immediately begin coordination with Canada and Mexico to ensure a successful repack in the border zones."); CTIA Comments at 41 (The FCC should "promptly commence discussions with the relevant Canadian and Mexican authorities, if it has not already, to develop agreements that will help protect these services from harmful interference."); Nokia Siemens Comments at 21; Expanding Opportunities Coalition Comments at 24- 25 ("The FCC should strive to resolve these border issues as quickly as possible to the extent that they could affect the incentive action [sic] and the corresponding repacking of the broadcast spectrum."); ABC Television Affiliates at 18.

coordination delays.[19] The consensus is clear that international coordination cannot wait until after the auction – it is critical that the Commission begin to pursue these coordination efforts very early in the process.

To start, the Commission should consider appointing a task force or other body to initiate and advance the international coordination process. This will ensure that coordination remains a priority over the course of the auction proceeding and, if necessary, beyond. The Commission also should consider ways in which it can make progress on international coordination issues in the near-term and allow the incentive auction to proceed, even though the precise amount and location of cleared spectrum will not be known ahead of time, and coordination may not be complete until after the auction has concluded. For example, the Commission could issue a public notice seeking comment on the scope of issues that must be resolved in order to allow the auction to proceed, input from Canadian and Mexican regulatory authorities regarding the coordination process, and data on stations operating in those countries near the border with the United States. Based on feedback received, the Commission should outline a framework and explain how the auction and repacking can proceed while international coordination efforts are completed.[20]

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[19] *See, e.g.*, Alcatel Lucent Comments at 29 (proposing the creation of a joint Radio Network Planning team "to better coordinate co-siting and antenna orientation coordination"); AT&T Inc. Comments at 49 (proposing that the FCC "seek further information on those topics through a separate notice specific to border-area interference and … solicit[] input of Canadian and Mexican regulatory authorities"); ABC Television Affiliates Comments at 12-15 (urging a flexible approach to construction/transition deadlines affected by international coordination, similar to the approach used in the DTV transition); CEA Comments at 33 (proposing the creation of a task force or similar working group); Sinclair Broadcast Group Comments at 13 (asking the FCC to expressly assign any coordination risk to the winning bidder in the forward auction).

[20] *See* AT&T at 48-51 (FCC should seek further information on border-area interference issues and should solicit input from Canadian and Mexican regulatory authorities); Expanding Opportunities for Broadcasters Coalition at 25 ("FCC should strive to resolve these border issues as quickly as possible" and "identify any remaining unresolved border coordination issues and …explain how the incentive auction and repacking would proceed if those issues cannot be resolved.").

While the Commission should pursue coordination as quickly as possible, there is no justification for some broadcasters' arguments that the process must be completed before the band plan is finalized or the incentive auction is conducted. As numerous commenters have said, the coordination process is lengthy and time-consuming. If the Commission were to determine that it could not move forward with the auction absent final coordination, this would unduly delay the auction and, ultimately, the clearing of spectrum for wireless broadband.

III. THE REPACKING APPROACH PROPOSED IN THE NPRM REFLECTS THE STATUTORY LANGUAGE AND INTENT

The Spectrum Act is unambiguous and does not require the Commission to replicate broadcasters' coverage areas and populations served. Instead, it expressly affords the Commission flexibility in the repacking process and clearly reflects that the Commission must take "all reasonable efforts" – in light of all of the goals of the Spectrum Act – to preserve broadcasters' coverage areas and populations served. Even if the Spectrum Act were ambiguous in this regard, the Commission's proposed interpretation regarding what constitutes "all reasonable efforts" is permissible. The Commission has proposed an approach to repacking that meets the letter and intent of the law, and it should adopt this plan.

A. THE SPECTRUM ACT DOES NOT REQUIRE THE COMMISSION TO REPLICATE COVERAGE AREAS AND POPULATIONS SERVED

Arguments by some broadcasters that their existing coverage areas and populations must be preserved in repacking[21] are inconsistent with the Spectrum Act's plain language requiring

[21] *See, e.g.*, Belo Corporation Comments at 14 ("[T]he Spectrum Act requires the Commission to retain the same coverage and population currently served by local broadcast television stations, and reduce either only in exceptional circumstances."); Broadcast Networks Comments at 5 ("[T]he Broadcast Networks join NAB in urging the Commission to adopt as a baseline for any repacking mechanism the Congressional admonition to Do No Harm to those stations that do not participate in the auction by relinquishing spectrum."); ABC Television Affiliates Comments at 32 ("A rule that preserves service to the same viewers and only allows 'replacement' interference that existed as of the enactment best comports with the Spectrum Act"); The School Board of Broward County Comments at 2 ("SBBC is

the Commission only to take "all *reasonable* efforts" in this regard.[22] Congress unambiguously permitted the Commission to use a flexible approach to repacking that serves the overall purpose of the Spectrum Act and avoided a strict replication-based approach that would undermine that purpose. Even if the Spectrum Act were ambiguous on this issue, the Commission's interpretation is both permissible and persuasive under *Chevron* because it fits the meaning of the text and fulfills the intent of the statute. It also is persuasive. Finally, a strict replication-based approach to repacking would severely hobble the Commission's ability to effectively and efficiently achieve the overall goal of the Spectrum Act to reclaim and reallocate as much spectrum as possible.

1. THE SPECTRUM ACT UNAMBIGUOUSLY ESTABLISHES A REPACKING STANDARD THAT IS MORE FLEXIBLE THAN THE DTV REPLICATION APPROACH.

a. CONGRESS DID NOT DIRECT THE COMMISSION TO REPLICATE COVERAGE AREAS AND POPULATIONS SERVED

Congress did not require the Commission to replicate broadcasters' coverage areas and populations served when repacking them in connection with the incentive auction. The Spectrum Act authorizes the Commission to "make such reassignments of television channels as the Commission considers appropriate" for "purposes of making available spectrum to carry out the forward auction."[23] In making these reassignments, Congress directed the Commission to

> make all reasonable efforts to preserve, as of the date of the enactment of this Act, the coverage area and population served of

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opposed to any FCC mandated frequency change that will result in a diminished or modified service area."); Comcast Corp. and NBCUniversal Media LLC Comments at 3 ("The Commission also must ensure that broadcasters are able to serve the same geographic coverage area and the same viewers post auction as provided for under the current rules (and not just the same *amount* of coverage area, or the same *number* of viewers)")(emphasis in original)("Comcast/NBCU Comments").

[22] Spectrum Act § 6403(b)(2) (emphasis added).

[23] Spectrum Act § 6403(b).

> each broadcast television licensee, as determined using the methodology described in OET Bulletin 69 of the Office of Engineering and Technology of the Commission.[24]

Rather than imposing a strict replication condition on the Commission's repacking methodology, the Spectrum Act is unambiguous in using the term "reasonable" to describe the type of efforts required, thereby granting flexibility for the Commission to determine, in context, what is reasonable. Many broadcast commenters nevertheless claim that the Spectrum Act requires the Commission to replicate broadcaster service area and population covered while repacking,[25] much like the FCC strove to do in the context of the DTV transition to ensure that digital post-transition signals covered the same service area as the pre-transition analog signals.[26] These commenters are mistaken, and the absence of a replication requirement is telling – Congress could have set up a strict replication approach, but did not. It is well established that we can presume that the plain language of the statute (including any omission therein) reflects what Congress intended.[27] Congress was intimately familiar with the decade-plus DTV transition, and

[24] *Id.* § 6403(b)(2).

[25] *See, e.g.*, Tribune Company Comments at 16-17 ("The Commission's repack rules must strictly protect broadcasters' current service areas and populations."); Cox Media Group Comments at 2-3 ("The spectrum repack should be based on full service replication"); National Association of Broadcasters Comments at 19 ("The correct approach to any repacking or reassignment is to provide each broadcaster with the *same coverage* and *same population* that it now serves.") (emphasis in original). *See also supra note 21*.

[26] *See Second Periodic Review of the Commission's Rules and Policies Affecting the Conversion To Digital Television*, 19 FCC Rcd 18279, 18311 ¶ 72 (2004) (citing *Sixth Report and Order in the Matter of Advanced Television Systems and their Impact Upon the Existing Television Broadcast Service*, 12 FCC Rcd 14588, 14605, ¶¶ 29-30 (1997)).

[27] *Ayes v. United States VA*, 473 F.3d 104, 108 (4th Cir. 2006) ("In interpreting a statute, 'a court should always turn first to one, cardinal canon [of construction] before all others': the plain meaning rule… We must presume that 'Congress says in a statute what it means and means in a statute what it says....')(quoting *Conn. Nat'l Bank v. Germain*, 503 U.S. 249, 253-54 (1992); *Hartford Underwriters Ins. Co. v. Union Planters Bank, N. A.*, 530 U.S. 1, 6 (2000)). *See also, United States v. Goldenberg*, 168 U.S. 95, 102-103 (1897) ("The primary and general rule of statutory construction is that the intent of the

the replication goal the Commission established in that context. In fact, Congress passed numerous laws during that period dealing with the DTV transition.[28] Despite that familiarity, Congress did not impose a requirement in the Spectrum Act that the Commission replicate broadcast station coverage area and population served, or even use the term "replication."

If Congress had intended the Commission to adopt a replication-based approach for repacking, it would have said so in the statute. This is particularly true here, where the statutory language was the result of intense deliberation and considered negotiation among many of the very same parties commenting in this proceeding. Commenters who wish the outcome had been otherwise cannot now rewrite the Spectrum Act to achieve their desired result.

b. THE NPRM'S REPACKING PROPOSAL IS CONSISTENT WITH THE STATUTORY DIRECTIVE OF "ALL REASONABLE EFFORTS"

Congress's requirement that the Commission make "all reasonable efforts" to preserve broadcaster coverage area and population served is a clear grant of regulatory flexibility. Parties claiming that "all reasonable efforts" means, in essence, replication except in very rare circumstances[29] are mistaken. The Commission need not interpret "all reasonable efforts" because its meaning is clear: it is required to take only those efforts that can be considered "reasonable."

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lawmaker is to be found in the language that he has used. … Certainly, there is nothing which imperatively requires the court to supply an omission in the statute, or to hold that Congress must have intended to do that which it has failed to do.").

[28] *See, e.g.*, Digital Television and Public Safety Act of 2005 ("DTV Act"), which is Title III of the Deficit Reduction Act of 2005, Pub. L. No. 109-171, 120 Stat. 4 (2006) (codified at 47 U.S.C. §§ 309(j)(14) and 337(e)); DTV Delay Act, Pub. L. No. 111-4, 123 Stat. 112 (2009).

[29] Comcast asserts that "the phrase 'all reasonable efforts' requires a singular focus on the stated objective – here, preserving the integrity of broadcasters' coverage areas and populations served [and] requires the Commission to focus first and foremost on preserving the ability of broadcast stations to continue to serve the needs and interests of their viewers." Comcast/NBCU Comments at 13.

The Commission must, however, determine what is reasonable. The Commission correctly concludes that "reasonable" efforts are those that are "suitable under the circumstances … and appropriate to the end in view."[30] The text of Section 6403 explicitly describes the purpose of channel reassignments – the "end in view" – as "making available spectrum to carry out the forward auction."[31] Thus, in clearly laying out a standard of reasonable effort, Congress expected the Commission to consider the goal of spectrum reallocation while executing its efforts to repack broadcasters.

2. EVEN IF THE SPECTRUM ACT WERE AMBIGUOUS, THE COMMISSION'S INTERPRETATION IS BOTH PERMISSIBLE AND PERSUASIVE BECAUSE IT COMPORTS WITH THE TEXT AND INTENT OF THE STATUTE

The Spectrum Act is clear that the Commission, in exercising "all reasonable efforts" to repack broadcast television stations, has significant flexibility to consider and pursue the reallocation goals of the statute. However, even if the term "all reasonable efforts" were ambiguous, the Commission's interpretation would be not only permissible, but persuasive, under a *Chevron* part two analysis.[32] Under *Chevron*, if a statute "is silent or ambiguous with respect to the specific issue, the question … is whether the agency's answer is based on a permissible construction of the statute."[33] The text and the legislative history of the Spectrum Act specify that the overarching purpose of the Act is to free up spectrum for reallocation and auction. Thus, interpreting "all reasonable efforts" to take into account that overarching goal is not only permissible, it is actually the best interpretation of the language of the statute.

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[30] NPRM, 27 FCC Rcd at 12393 n.163 (quoting Black's Law Dictionary (6th Ed. 1990) at 1265).

[31] Spectrum Act § 6403(b)(1).

[32] *Chevron U.S.A. Inc. v. Natural Resources Defense Council, Inc.*, 467 U.S. 837 (1984) ("*Chevron*"). Chevron part one asks if Congress's intent in the statute is clear. *Id.* at 842-43.

[33] *Chevron*, 467 U.S. at 843.

First, as demonstrated above, the Commission's reading is consistent with the text of the relevant provision. "Reasonable" can be read as requiring that the Commission keep in mind the context of the statute – repurposing of spectrum for wireless broadband.[34] Even if this were not the only interpretation of "all reasonable efforts," it is certainly a permissible one.

Second, the Commission's reading is consistent with the rest of the Spectrum Act. For example, Section 6403(a)(1) directs the Commission to "conduct a reverse auction … *in order to make spectrum available* for assignment through a system of competitive bidding."[35]

Finally, the Commission's reading of "all reasonable efforts" is consistent with Congress's intent in enacting the statute, as reflected in the Joint Conference Report: "[T]his legislation advance[s] wireless broadband service *by clearing spectrum for commercial auction*…"[36] The conference report does not mention preservation of broadcasters' coverage areas and population served as a purpose of the law.[37]

Chevron establishes that an agency's interpretation of an ambiguous statute provision is proper if it is a reasonable or permissible reading of the statute, even if other permissible

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[34] *Supra*, Section II(A)(1).

[35] Spectrum Act § 6403(a)(1) (emphasis added).

[36] Joint Explanatory Statement of the Committee of Conference, H.Rep. 112-399 at 136 (emphasis added).

[37] Some commenters argue that it is clear from the legislative history that Congress intended to protect broadcasters. *See, e.g.*, Comcast/NBCU Comments at 11-12, n.24 (arguing that a change in language from "substantially similar" to "all reasonable efforts to preserve" indicates Congress's intent to protect broadcasters). However, nothing in the legislation or the legislative history suggests that goal is the dominant goal of the Spectrum Act or on par with Congress's desire to "clear[] spectrum for commercial auction." Joint Explanatory Statement of the Committee of Conference, H.Rep. 112-399 at 136. The question is not whether the Commission will protect broadcasters – its repacking process will preserve *nearly all* of the existing levels of service. The question is whether the Commission is obliged to protect *all* of the existing levels of service without considering the impact on the goal of spectrum clearing. The answer is plainly no.

interpretations are available.[38] As the Commission recently stated, *Chevron* reflects the understanding that "the resolution of open questions under a statute often requires the application of technical expertise and the balancing of competing policy interests."[39] Here, the Commission is engaging in just such a balancing of competing policy interests, and its interpretation of "all reasonable efforts" is an appropriate exercise of its expert understanding of the interests at stake. Accordingly, the Commission should adopt the approach set forth in the NPRM.

3. A STRICT REPLICATION-BASED STANDARD WOULD HINDER THE COMMISSION IN ACHIEVING THE GOALS OF THE SPECTRUM ACT

The Spectrum Act is a direct outgrowth of the National Broadband Plan's ("NBP's") ambitious proposal to conduct incentive auctions as one possible solution to the nation's spectrum shortage.[40] Recognizing that "[i]ncentive auctions can provide a practical, market-based way to reassign spectrum, shifting a contentious process to a cooperative one," the NBP concluded that "incentive auctions … would benefit both spectrum holders and the American public, [and that] [t]he public could benefit from additional spectrum for high-demand uses and from new auction revenues."[41] From the NBP process through Congress's passage of the Spectrum Act and the Commission's implementation, the entire purpose of the broadcast incentive auction has been to free up spectrum for reallocation. As CEA has explained, freeing up additional spectrum by reallocating it to higher-demand use is critical. While innovation in the wireless space is infinite, the amount of spectrum available to *enable* our wireless devices

[38] *Chevron*, 467 U.S. at 843-844.

[39] Brief for the Federal Respondents at 11, *City of Arlington, Texas v. Federal Communications Commission* (Dec. 2012) (Nos. 11-1545 and 11-1547), *available at* http://hraunfoss.fcc.gov/edocs_public/attachmatch/DOC-318063A1.pdf.

[40] FCC, CONNECTING AMERICA: THE NATIONAL BROADBAND PLAN at 81, XII (rel. Mar. 16, 2010) ("National Broadband Plan" or "NBP"), *available at* http://www.broadband.gov/plan/.

[41] NBP at XII, 81.

and applications is constrained.[42] Without additional spectrum, the U.S. cannot maintain its leadership role in developing innovative new wireless broadband devices, networks, and services that benefit consumers and spark U.S. economic growth and jobs.

Adopting an approach to repacking that construes "all reasonable efforts" to mean replication would hobble the Commission in its efforts to accomplish the ultimate goal of the Spectrum Act for the broadcast incentive auction and incentive auctions generally: reclaiming the maximum amount of spectrum possible. Specifically, a too-strict, replication-based approach to repacking would limit the Commission's ability to free up the maximum possible amount of spectrum because it would reduce the Commission's flexibility to repack stations in the most efficient way. As the NPRM explains, "whatever approach we adopt to preserving population served will have a significant impact on the amount of spectrum we are able to repurpose for mobile broadband use . . . ."[43] Building on the Commission's metaphor that repacking is conceptually similar to filling a trunk with boxes of various sizes, the ability to resize those boxes – even by a relatively minor amount – can provide significantly more options for repacking and lead to overall outcomes that better satisfy the parties on average.[44]

In any event, even if replication technically were possible in all cases, which is unrealistic,[45] striving to achieve exact duplication of coverage area and population would require unreasonable technical efforts and tie up Commission resources that would be better spent on

[42] CEA Comments at 6-12.

[43] NPRM, 27 FCC Rcd at 12396 ¶ 111.

[44] *Id.* at 12374 ¶ 43.

[45] As the NPRM recognizes, "[F]ull replication may not always be possible" due to a variety of factors that influence reception when a station is broadcast on a different frequency. *Id.* at 12389 ¶ 97, n.147. And as CTIA indicates, changes in station frequencies will necessarily affect coverage. For example, changing to a lower UHF frequency could expand the distance a TV station signal travels, increasing coverage; changing to a higher UHF frequency could have the reverse effect. CTIA Comments at 35.

ensuring the smooth operation of the auction. As the NPRM notes, replicating an antenna pattern on a different frequency, even approximately, is a sophisticated engineering task.[46] Requiring – or even striving toward – exact duplication would unduly constrain the repacking model and could undermine the goals of the Spectrum Act. This is particularly true if repacking is to occur in real time during the auction, because "additional technical constraint[s] would increase the complexity of the repacking process, possibly requiring additional time and resources and limiting the efficiency of the outcome."[47]

For these reasons, the Commission should adopt its proposal in the NPRM to apply "all reasonable efforts" in a reasonable manner, based on the overall Congressional priority it seeks to implement.

B. THE COMMISSION SHOULD NOT ALLOW THE CONTROVERSY OVER SOFTWARE IMPLEMENTING OET-69 TO DELAY PROGRESS TOWARD THE INCENTIVE AUCTION

Use of the new *TVStudy* software to implement OET Bulletin No. 69 ("OET-69" or the "Bulletin") is consistent with the Commission's authority under the Spectrum Act and furthers the goals of the statute. The Commission should not allow misplaced concerns over use of the software to delay its progress in implementing its incentive auction authority.

Specifically, the Commission should disregard NAB's recent criticism of the Office of Engineering Technology's ("OET") Public Notice[48] seeking comment on the *TVStudy* software developed to implement OET-69 in the context of the incentive auction. NAB erroneously

[46] NPRM, 27 FCC Rcd at 12391 ¶ 100.

[47] *Id.* at 12375 ¶ 48.

[48] Office of Engineering and Technology Releases and Seeks Comment on Updated OET-69 Software, Public Notice, DA 13-138 (rel. Feb. 4, 2013) ("Public Notice" or "Notice"); OET Bulletin No. 69, *Longley-Rice Methodology for Evaluating TV Coverage and Interference*, Feb. 6, 2004 ("OET-69"), *available at* http://transition.fcc.gov/Bureaus/Engineering_Technology/Documents/bulletins/oet69/oet69.pdf.

argues that the Public Notice improperly proposes changes to OET-69, that the changes will confuse broadcasters, and that the changes should only be undertaken after a rulemaking proceeding conducted "apart from the incentive auction process."[49] Contrary to NAB's assertions, the Public Notice does not propose any changes to the methodology of OET-69; it merely describes and seeks public comment on updates and improvements to the tools that the Commission uses to implement that methodology. For example, the *TVStudy* software will use updated census figures and more accurate coordinates where OET-69 requires population and location information. The software will use actual, versus assumed, antenna electrical down-tilt information where OET-69 calls for the angle of electrical down-tilt. These changes are necessary and appropriate in light of current technology and demographic data, and they do not change the methodology of OET-69 for determining coverage areas and populations. OET's questions regarding treatment of "flagged cells" also does not change the methodology described in OET-69. While the previous software developed to apply OET-69 in the context of changes to the Table of Allotments treated flagged cells as served, that treatment is not required by (or even discussed in) OET-69. As a result, OET's request for comment on how flagged cells should be treated in the context of the incentive auction is not inconsistent with the requirement in the Spectrum Act to use the methodology described in OET-69. Moreover, if the Commission determines that a different approach to flagged cells is more appropriate in the context of repacking, it can permissibly make such a change to the implementing software, while continuing to use the methodology of OET-69 as required by the statute.

The Commission should not be swayed by attempts to delay progress on the incentive auction by calling for a separate rulemaking proceeding with respect to the *TVStudy* software.

[49] Letter from NAB to Marlene H. Dortch, Secretary, FCC, ET Docket No. 13-26, GN Docket No. 12-268 (filed Feb. 8, 2013).

OET has released the *TVStudy* software far enough in advance of the auction, and has provided ample time for interested parties to test the software, in order to enable those parties to provide constructive input regarding the software's performance. Contrary to NAB's assertions, the Public Notice provides additional clarity to broadcasters regarding the repacking process, because they can now determine the coverage areas the Commission will use in its repacking analysis.

The Commission should reject NAB's mischaracterizations of the Public Notice. Once the comment cycle on the *TVStudy* Public Notice concludes, OET should incorporate any constructive input regarding the use of the *TVStudy* software. That process should not delay the Commission's adoption of rules to conduct the incentive auction, as mandated by the Spectrum Act and the public interest.

IV. FIRM, SPECIFIC DEADLINES WITH REASONABLE REIMBURSEMENT RULES WILL MOST EXPEDITIOUSLY CLEAR THE BAND

To expedite the use of new spectrum for wireless broadband, the Commission should adopt clearing and reimbursement rules that appropriately incentivize broadcasters to vacate existing channels and should set firm deadlines for such action. The availability of spectrum post-auction is a crucial element of the incentive auction process. Indeed, it is the whole underlying goal of the process. It would be inconsistent with Congress's intent and bad public policy to adopt rules, as some broadcasters propose, that would force consumers to wait more than three years after the auction to enjoy the benefits of additional mobile services and features that the availability of spectrum resources will bring.[50]

[50] NAB Comments at 11, 49-51; LIN Television Comments at 7; Named State Broadcasters Associations Comments at 15 (admitting that even after three years, waivers might be needed for local permitting processes); Harris Corp. Comments at 11-13.

Instead, the Commission should adopt rules that promote expeditious movement out of the band. First, the Commission must establish hard deadlines for spectrum clearing. Hard deadlines would reduce business uncertainty, enable planning, and motivate necessary action, for both broadcast and non-broadcast auction participants. The DTV transition, which sputtered for years while Congress time after time extended the deadline,[51] demonstrates the need for and benefits of a concrete, final deadline. In addition to a final deadline, the Commission also should establish interim milestones for broadcaster relocation, including timeframes by which broadcasters who will remain on the air must apply for permits on their replacement channels. The Commission should take any action necessary, including delegating authority to the Media Bureau, to expedite this process.

Aggressive relocation deadlines can also be fair and achievable. Stations that submit winning bids to relinquish their channels and cease broadcasting should be in a position to vacate the band quickly after the close of the auction. For these stations, the Commission should establish a hard deadline to vacate and turn in their licenses promptly after the auction.[52] For stations that agree to share channels, or that are repacked, the FCC's proposed 18 month timeframe[53] should be more than sufficient, and even less time may be needed.[54] Although some

[51] *See, e.g.*, The Balanced Budget Act, 143 Cong. Rec. H6032-H6033 (adding new section 309(j)(14)(A) to the Communications Act which forbid renewing analog licenses beyond Dec. 31, 2006); DTV Act, 120 Stat. 4; DTV Delay Act, 123 Stat. 112.

[52] Such broadcasters also should receive their auction payments as soon as possible.

[53] NPRM, 27 FCC Rcd at 12464-65 ¶ 322. *See also* USCC Comments at 57-59 (The FCC should take all possible steps to quickly clear the 600 MHz band of interference from broadcasters - 18 months would be reasonable - thereby freeing up this spectrum for new and innovative wireless broadband services. The FCC should establish earlier clearing deadlines for winning license termination bidders and winning channel sharing bidders.)

[54] Mobile Future Comments at 20; TIA Comments at 17-18; CTIA Comments at 34; Nokia Siemens Comments at 20.

broadcasters suggest that technical challenges warrant lengthier timeframes,[55] the DTV transition shows that broadcasters who choose to remain on air do not require lengthy periods of time to switch channels: "of the more than 100 licensees whose requests to substitute channels were granted towards the end of the digital transition, most completed construction within 12 months of receiving a construction permit."[56] Now, broadcasters and the FCC both have more knowledge and experience regarding DTV channel moves, and the costs are reimbursable, so relocation should go even more quickly. To facilitate this effort, the Commission should provide funds to broadcasters early in the process and should consider whether the use of estimated costs might promote more expeditious processing of reimbursement requests.

V. THE COMMISSION CAN BUILD ON THE FOUNDATION OF CONSTRUCTIVE INDUSTRY INPUT TO QUICKLY REACH RESOLUTION ON THE 600 MHZ BAND PLAN

A significant, cross-sector consensus is emerging with respect to several elements of the 600 MHz band plan proposed in the NPRM, including the use of 5 MHz spectrum blocks, offering licenses based on EAs, package bidding to enable carriers to acquire multiple 5 MHz licenses in the same EA or across several EAs, auctioning paired spectrum blocks with supplemental downlink where paired blocks are not feasible, placing a guard band between mobile and TV broadcast operations, and permitting unlicensed operations on a non-interfering basis in the duplex gap and the guard band. The Commission can move ahead quickly on these issues and should adopt these broadly-supported proposals. However, some commenters raised technical issues regarding the location and size of the duplex gap; the Commission should work

[55] NAB Comments at 11, 49-51; LIN Television Comments at 7; Named State Broadcasters Associations Comments at 15 (stating that even after three years, waivers might be needed for local permitting processes).

[56] NPRM, 27 FCC Rcd at 12464 ¶ 322 (citation omitted); AT&T Comments at 78.

with industry to determine whether and how to resolve those concerns in light of the Commission's proposed lead band plan.

A. RELY UPON 5 MHZ SPECTRUM BLOCKS AS BUILDING BLOCKS FOR THE BAND PLAN

Commenters agree that 5 MHz blocks are more in line with other wireless broadband spectrum allocations and with most broadband technologies being developed.[57] The use of 5 MHz blocks will maximize utility and allow for most efficient use of the 600 MHz band, whereas 6 MHz blocks do not map efficiently onto the 5 MHz channel sizes used for most commercial mobile broadband technologies, including LTE. 5 MHz blocks are also an effective building block for carriers who wish to obtain spectrum in larger contiguous units. The Commission accordingly should enable carriers to bid on multiple blocks in a market in order to obtain larger amounts of spectrum, and a block size of 5 MHz would best facilitate this bundled bidding.

B. ADOPT ECONOMIC AREAS AS THE APPROPRIATE GEOGRAPHICAL UNIT OF LICENSES

There is support among a number of potential forward auction participants that EAs are the appropriate size for new 600 MHz licenses. As Leap Wireless explains, EAs are "well understood and are sized sufficiently such that small, midsize, and regional carriers can use them effectively to deploy wireless services consistent with their business plans."[58] Larger carriers

[57] Competitive Carriers Association Comments at 12; CTIA Comments at 20; Leap Wireless Comments at 5 (5 MHz blocks consistent with common industry practice); MetroPCS Comments at 19 (5 MHz blocks would promote competition).

[58] Leap Wireless Comments at 4.

also support using EAs,[59] and several carriers support package bidding that would enable operators to acquire packages of licenses across multiple EAs.[60]

C. MAXIMIZE THE AMOUNT OF PAIRED SPECTRUM AND RELY ON SUPPLEMENTAL DOWNLINK CONFIGURATIONS WHERE SPECTRUM IS CLEARED BUT PAIRING OPTIONS ARE NOT VIABLE

Paired spectrum is most consistent with existing and developing broadband technologies, and the Commission should focus on pairing options first.[61] Several commenters urge the FCC to maximize the amount of paired spectrum made available in the auction.[62] However, as CEA and several other commenters remain supportive of the goal of clearing as much spectrum as possible, the Commission should seek to clear additional spectrum even if that spectrum cannot be paired.[63] Where additional spectrum is cleared and pairing is not viable, the Commission should allocate spectrum for supplemental downlink. Such spectrum would be adjacent to other downlink operations and therefore would not raise interference concerns.

Several parties urge the Commission to maximize the amount of paired spectrum made available above Channel 37 and note that this would not preclude the Commission from

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[59] *See, e.g.*, MetroPCS Comments at 18; Leap Wireless Comments at 4-5; Competitive Carriers Association Comments at 14-15 ("[T]he FCC should license the spectrum in geographic blocks no larger than EAs"); Verizon and Verizon Wireless Comments at viii.

[60] Verizon and Verizon Wireless Comments at 49-50; AT&T Comments at 53-54.

[61] Cellular South Comments at 6-8; Leap Wireless Comments at 5-6; MetroPCS Comments at 19-20; Research In Motion Comments at 8-9.

[62] CTIA Comments at 20-21 ("Given the desirability of paired spectrum, and based on the analysis to date, the Commission should emphasize pairing spectrum bands and should not allocate spectrum for supplemental downlink unless no pairing option is feasible."); Verizon and Verizon Wireless Comments at 6, 17.

[63] Alcatel-Lucent Comments at 25-26; CTIA Comments at 21 ("[S]upplemental downlink spectrum would prove useful to wireless licensees where paired spectrum is not available.").

recovering more spectrum – even beyond the 120 MHz goal set out in the NBP.[64] As industry and the Commission together continue to consider various band plans, the Commission's emphasis should continue to be on offering paired blocks.

D. PROVIDE A GUARD BAND BETWEEN HIGH POWER BROADCASTERS AND MOBILE DOWNLINK THAT IS SUFFICIENT TO PROTECT BOTH FROM INTERFERENCE

As the NPRM highlights, a guard band or bands will be necessary to prevent interference between TV broadcast and mobile operations. Several parties agree that a guard band is essential, but observe that further study is necessary to determine the appropriate size of the guard band to avoid interference between TV broadcast and mobile operations.[65] Many suggest that the guard band likely will need to be larger than 6 MHz.[66] The Commission should remain open to additional input from the broadcast and wireless industries regarding what size guard bands would be appropriate.

E. PERMIT UNLICENSED OPERATIONS IN THE DUPLEX GAP AND GUARD BANDS THAT WOULD NOT RESULT IN HARMFUL INTERFERENCE TO ADJACENT LICENSED SERVICES

Several commenters observed that unlicensed spectrum has emerged as a hotbed of innovation, and is a key part of addressing the spectrum crunch.[67] The record supports the

[64] *National Broadband Plan* at 88-89. *See, e.g.*, Verizon and Verizon Wireless Comments at 9-10.

[65] Cisco Systems Comments at 11-12; CTIA Comments at 27; IEEE 802 Comments at 3; Sony Electronics Comments at 6.

[66] Google and Microsoft Comments at 39-42; Motorola Mobility Comments at 12-13; Nokia Comments at 18; Sony Electronics Comments at 6; Verizon and Verizon Wireless Comments at 19-20.

[67] Comcast/NBCU Comments at 29-46; Public Interest Spectrum Coalition Comments at 12-13 ("[W]idespread availability of unlicensed spectrum is the single most important factor in mitigating the 'spectrum crunch.'"); NCTA Comments at 2-3.

important role of unlicensed spectrum, which includes providing opportunities for entrepreneurs who have difficulty accessing capital.[68]

Commenters generally agree that unlicensed operations should be permitted in the duplex gap and the guard bands on a non-interfering basis.[69] Rules governing the operation of unlicensed devices should be established after the technical rules for adjacent licensed services have been developed, and must ensure that unlicensed operations do not cause interference to licensed services. Allowing unlicensed use in the duplex gap and guard bands would offer many benefits. If they are large enough, the duplex gap and guard bands will provide a slice of spectrum substantial enough to draw investment.[70] Permitting unlicensed use would provide unlicensed spectrum in each market because the duplex gap and guard bands would be available even in cities where limited white spaces remain in the 600 MHz band.[71] In addition, unlicensed operation in the duplex gap and guard bands will add value to licensed mobile broadband by providing significant spectrum for wireless devices to offload traffic.[72]

F. WORK WITH INDUSTRY TO ASSESS THE MERITS OF A CONTIGUOUS "DOWN FROM TV 51" APPROACH WITH UPLINK AT THE TOP

Some commenters state that a contiguous band plan[73] would reduce the instances in which TV operations would be adjacent to mobile operations, and thus reduce the number of

[68] Leadership Conference Comments at 7.

[69] Google and Microsoft Comments at 31; Motorola Mobility Comments at 11; Verizon and Verizon Wireless Comments at 19-20

[70] Google and Microsoft Comments at 37-38, Borth Decl. at 2-4.

[71] Google and Microsoft Comments at 37-38, Borth Decl. at 2-4.

[72] NCTA Comments at 17.

[73] As referred to here, a "contiguous" band plan is one in which 600 MHz uplink and downlink operations are separated by a duplex gap that does not include TV operations.

necessary guard bands.[74] They further indicate that placing uplink at the top of the band, adjacent to 700 MHz band uplink spectrum, would eliminate the need for a guard band.[75] This placement may also be less likely to generate harmful interfering signal harmonics and intermodulation distortion.[76] While a uniform nationwide downlink approach, as contemplated by the Commission's lead band plan, may facilitate deployment, the Commission and industry should work together to assess the merits of these comments and reflect on how these concerns may be addressed in the Commission's lead band plan.

G. INCORPORATE A "DUPLEX GAP" OR SPACING BETWEEN UPLINK AND DOWNLINK

There is broad agreement that a duplex gap between the 600 MHz uplink (mobile transmit) block and the downlink (base transmit) block is necessary.[77] However, a number of parties noted the need for additional study to determine the appropriate size and use of the duplex gap, suggesting that the duplex gap should be smaller than 90 MHz, and that broadcast operations not be allowed within the gap.[78] These parties state that keeping TV stations out of the duplex gap would reduce interference concerns by limiting the number of adjacencies between TV and mobile broadband spectrum, thereby reducing the potential for (i) co-channel interference from TV stations in adjacent markets to wireless base station receivers, (ii) intermodulation and adjacent channel interference, and (iii) potential interference from

[74] Broadcast Networks Comments at 9-10; Harris Corp. Comments at 25; NAB Comments at 34-39; NCTA Comments at 5.

[75] Verizon and Verizon Wireless Comments at 14; T-Mobile Comments at 11.

[76] Qualcomm Comments at 7-13.

[77] Alcatel-Lucent Comments at 17; CTIA Comments at 28; Motorola Mobility Comments at 8-10; Nokia Siemens Comments at 9-11; Research In Motion Comments at 14; Sony Electronics Comments at 4.

[78] Broadcast Networks Comments at 9; NAB Comments at 34-39; T-Mobile Comments at 4-9.

harmonics into PCS and BRS/EBS mobile bands if uplinks are allowed in portions of the 600 MHz band.[79] Commenters also suggest that broadcast operations in a large duplex gap would create challenging engineering and design problems that could, for example, increase the size, weight and cost of both television receivers and LTE handsets.[80] The Commission should conduct further analysis to determine the appropriate size of the duplex gap, whether TV broadcast operations can be accommodated there, and how these concerns should be resolved.

VI. CONCLUSION

The Commission should leverage the growing consensus in this proceeding and build on it to move forward toward the incentive auction as described herein. Where parties do not yet agree, the Commission should apply the "all reasonable efforts" standard as set forth in the NPRM, clearly structure the post-auction transition, adopt firm, specific deadlines for broadcasters to vacate the band, and adopt reimbursement rules that foster prompt relocation.

[79] NCTA Comments at 5; NAB Comments at 34-39.

[80] T-Mobile Comments at 4-9; Verizon and Verizon Wireless Comments at 5-6; NAB Comments at 34-39 (noting that such operations could increase the cost of TV receivers); Broadcast Networks Comments at 9 (interspersing broadcast TV stations and wireless licenses is "destined to create deleterious engineering consequences.").

Finally, working together with industry, the Commission can build on the constructive input in response to the NPRM to quickly reach resolution on a new 600 MHz band plan.

Respectfully submitted,

CONSUMER ELECTRONICS ASSOCIATION

By: /s/ Julie M. Kearney

Julie M. Kearney
Vice President, Regulatory Affairs
Brian E. Markwalter
Senior Vice President, Research and Standards
Consumer Electronics Association
1919 S. Eads Street
Arlington, VA 22202
(703) 907-7644

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