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**VIA ELECTRONIC FILING**

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

***Re: Expanding Flexible Use of the 3.7 to 4.2 GHz Band, GN Docket No. 18-122***

Dear Ms. Dortch:

Chairman Pai's announcement that the Commission will conduct a public auction of 280 megahertz of C-Band spectrum will ensure that this valuable spectrum is put to use expeditiously for 5G in a manner consistent with the public interest, while also preserving the C-Band as a critical input for the delivery of video services in the United States.<sup>1</sup> Over the last two years, much of the debate about C-Band reallocation has centered on the merits of the C-Band Alliance's ("CBA") private sale proposals. Comcast/NBCUniversal, CBA, and many other interested stakeholders have engaged in efforts to develop a comprehensive and transparent solution that balances the many interests in the proceeding. Yet in all this time, and despite a consistent refrain by multiple parties calling for additional information about CBA's ever-changing proposals,<sup>2</sup> numerous critical questions remain unanswered. Open questions pertain to

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<sup>1</sup> See Letter from Ajit Pai, Chairman, FCC, to Members of Congress, at 1 (Nov. 18, 2019), <https://www.fcc.gov/document/chairman-letter-regarding-c-band> ("Pai C-Band Auction Letter"). Leaders in Congress agree. See 5G Spectrum Act, S. \_\_\_\_, 116th Cong. § 3(a) (1st Sess. 2019), <https://www.commerce.senate.gov/services/files/FCAFAE82-A372-492E-8D4E-4D4C8DD68D32> ("[T]he Commission shall initiate a system of competitive bidding under section 309(j) of the Communications Act of 1934 (47 U.S.C. 309(j)).").

<sup>2</sup> The approach originally contemplated by CBA proposed privately negotiated secondary market transactions to clear 100 megahertz of C-Band spectrum. See, e.g., Letter from Henry Gola, Counsel to the Intelsat Corporation, to Marlene H. Dortch, Secretary, FCC, GN Docket No. 17-183, at 1 (Feb. 14, 2018); Joint Comments of Intelsat License LLC and Intel Corporation, GN Docket No. 17-183, at 8 (Oct. 2, 2017) ("Intelsat and Intel propose that primarily affected FSS satellite operators be given the flexibility to enter into market-driven private agreements with one or more potential terrestrial mobile users of the cleared spectrum for each designated geographic area."). Since then, CBA has twice increased the amount of spectrum it intends to

how much spectrum would be reallocated, how the spectrum would be sold in a transparent and fair manner, and how video distribution services currently used by tens of millions of consumers would transition on a realistic timeframe and continue to operate free from harmful interference, service interruption, degradation, or financial harm.<sup>3</sup>

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clear by an additional 100 megahertz. On October 22, 2018, CBA announced plans to increase the amount of spectrum it intended to clear from 100 megahertz to up to 200 megahertz, and then a year later declared it could clear 300 megahertz. *See* Letter from Jennifer D. Hindin, Counsel to the C-Band Alliance, to Marlene H. Dortch, Secretary, FCC, GN Docket Nos. 17-183, 18-122 (Oct. 23, 2018); Letter from Bill Tolpegin, C-Band Alliance, to Marlene H. Dortch, Secretary, FCC, GN Docket No. 18-122, at 1-2 (Oct. 28, 2019) (“CBA Oct. 28 Letter”). Similarly, CBA has overhauled its proposed sale mechanism: first by moving from an undefined, private secondary market transaction to a sealed bid, second-price auction proposal on June 10, 2019, and then on October 29, 2019 by endorsing a set of auction principles that more closely resemble the auction design traditionally used by the Commission. Letter from Henry Gola, Counsel to the C-Band Alliance, to Marlene H. Dortch, Secretary, FCC, GN Docket No. 18-122 (June 10, 2019); Letter from AT&T Services, Inc., Bluegrass Cellular, C-Band Alliance, Pine Belt Wireless, U.S. Cellular, and Verizon, to Marlene H. Dortch, Secretary, FCC, GN Docket No. 18-122 (Oct. 29, 2019) (“AT&T et al. Oct. 29 Letter”). CBA also lengthened its proposed transition timeline from 36 months *from an FCC order* to 36 months *from an auction*. *Compare* Letter from Bill Tolpegin, C-Band Alliance, to Marlene H. Dortch, Secretary, FCC, GN Docket No. 18-122, at 1 (June 12, 2019) (proposing to clear 200 megahertz “within 18-36 months of a final FCC order”), *with* CBA Oct. 28 Letter at 1 (proposing to clear 300 megahertz “within 36 months from a CBA-led auction”). CBA has also changed its position with respect to returning a portion of auction proceeds to the U.S. Treasury. *Compare* Reply Comments of the C-Band Alliance, GN Docket No. 18-122, at 29-30 (Dec. 7, 2018) (defending the fact that the then-current CBA proposal would provide no revenue to the Treasury on the grounds that providing for such revenue would lead to unwelcome “complexity, uncertainty, and delay”), *with* Letter from Bill Tolpegin, C-Band Alliance, to Marlene H. Dortch, Secretary, FCC, GN Docket No. 18-122, at 1 (Nov. 15, 2019) (proposing “to pay a portion of net proceeds of a CBA-led auction to the U.S. Treasury”).

<sup>3</sup> *See, e.g.*, Letter from Michael P. Goggin, AT&T Services, Inc., to Marlene H. Dortch, Secretary, FCC, GN Docket No. 18-122, at 5-6 (Nov. 1, 2019) (“AT&T Nov. 1 Letter”); Letter from Brian Hurley, ACA Connects – America’s Communications Association, GN Docket No. 18-122 (Oct. 22, 2019) (“ACA Oct. 22 Letter”); Letter from Steve B. Sharkey, T-Mobile USA, Inc., to Marlene H. Dortch, Secretary, FCC, GN Docket No. 18-122, at 2 (Oct. 21, 2019); Letter from Elizabeth Andron, Charter Communications, Inc., to Marlene H. Dortch, Secretary, FCC, GN Docket No. 18-122, at 7-8 (Sept. 17, 2019); Letter from Neal M. Goldberg, NCTA – The Internet & Television Association, to Marlene H. Dortch, Secretary, FCC, GN Docket No. 18-122, at 2 (Feb. 8, 2019); Reply Comments of Comcast Corporation and NBCUniversal Media, LLC, GN Docket Nos. 18-122, 17-183, at 3-6 (Dec. 11, 2018) (“Comcast/NBCUniversal Reply Comments”).

But instead of providing sufficiently detailed information on the public record, CBA has responded primarily with high-level commitments and assurances,<sup>4</sup> too often ignoring calls for greater specificity, clarity, and transparency. For instance, CBA recently endorsed a set of “auction principles”<sup>5</sup> that, while laudable, fall short when compared to the Commission’s detailed auction procedures typically released well in advance of its own auctions.<sup>6</sup> CBA’s recently filed *Revised Transition Implementation Process* also provides little additional depth when compared to its previous video transition-related filings.<sup>7</sup> Other parties have raised similar concerns about the lack of specificity around CBA’s most recent proposal in particular.<sup>8</sup>

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<sup>4</sup> See Comments of the C-Band Alliance, GN Docket No. 18-122, at 134 (Oct. 29, 2018) (asserting that CBA will stand by its commitments if the Commission adopts its proposal “in all material respects”); Letter from Henry Gola, Counsel to the C-Band Alliance, to Marlene H. Dortch, Secretary, FCC, GN Docket No. 18-122 (Apr. 3, 2019) (describing “Customer Commitments”) (“CBA Apr. 3 Letter”); CBA Oct. 28 Letter (offering additional high-level commitments related to its proposal to clear 300 megahertz).

<sup>5</sup> See AT&T et al. Oct. 29 Letter.

<sup>6</sup> For example, for upcoming Auction 105, the Commission issued a detailed Public Notice seeking comment on the rules for the auction approximately nine months before the auction’s June 25, 2020 start date. See *Auction of Priority Access Licenses for the 3550-3650 MHz Band; Comment Sought on Competitive Bidding Procedures for Auction 105; Bidding in Auction 105 Scheduled to Begin June 25, 2020*, Public Notice, FCC 19-96, AU Docket No. 19-244 (Sept. 27, 2019). Similarly, the Commission issued Public Notices announcing the panoply of final procedures applicable in Auctions 101, 102, and 103 approximately three months, seven months, and five months, respectively, before each auction’s scheduled start date. See *Auction of 24 GHz Upper Microwave Flexible Use Service Licenses for Next-Generation Wireless Services*, Public Notice, 34 FCC Rcd. 933 (2019); *Auctions of Upper Microwave Flexible Use Licenses for Next-Generation Wireless Services*, Public Notice, 33 FCC Rcd. 7575 (2018).

<sup>7</sup> Compare Letter from Bill Tolpegin, C-Band Alliance, to Marlene H. Dortch, Secretary, FCC, GN Docket No. 18-122 (Nov. 8, 2019) (“CBA Nov. 8 Letter”), with Letter from Jennifer D. Hindin, Counsel to the C-Band Alliance, to Marlene H. Dortch, Secretary, FCC, GN Docket No. 18-122 (Apr. 9, 2019) and CBA Apr. 3 Letter.

<sup>8</sup> See AT&T Nov. 1 Letter at 1, 5 (explaining that, “[t]o date, CBA’s filings have offered little detail beyond vague commitments” and expressing concern that “many parties have made non-trivial legal arguments against the principal proposals on the record, including the [CBA’s],” and stating that the Commission should seek comment on the auction design, transition plan, and technical and service rules); Letter from Pantelis Michalopoulos & Georgios Leris, Counsel to ACA Connects – America’s Communications Association, to Marlene H. Dortch, Secretary, FCC, GN Docket No. 18-122 (Oct. 21, 2019) (“ACA Oct. 21 Letter”) (“In ‘rulemaking time,’ this is the eleventh hour and fifty ninth minute for radical new ideas to be aired. That timeline would not leave adequate time for interested parties to evaluate and comment on any new CBA spectrum-clearing proposal that may be forthcoming . . . [T]he legal basis for CBA’s proposal to

As suggested by Chairman Pai's recent statement, the clock has run out on seriously considering CBA's approach.<sup>9</sup> It is now time for the Commission to rely on its licensing and technical expertise and adopt a legally sound, time-tested system of competitive bidding that balances the interests of the many stakeholders involved through a transparent, public process. Comcast has consistently supported the use of a Commission-run auction to allocate and assign new Mid-Band Flexible Use spectrum, as long as it is accompanied by sufficient protections for incumbent C-Band Fixed Satellite Service ("FSS") users. A successful C-Band transition also will require a high degree of cooperation between incumbent C-Band licensees and such FSS users. With such cooperation, as Comcast has noted on multiple occasions, "[t]he Commission can quickly move toward an auction with both speed and care."<sup>10</sup>

The record and circumstances surrounding this proceeding support the Commission's reallocation of up to 300 megahertz of C-Band spectrum, through either (1) an incentive auction of 280 megahertz (consisting of forward and reverse auctions) under section 309(j)(8)(G) of the Communications Act, or (2) a more traditional auction of 280 megahertz under section 309(j)(1), following a modification of incumbent C-Band licenses to limit satellite operations to 200 megahertz.<sup>11</sup> Under either auction methodology, the Commission would be taking an important step to promote 5G in a legally sound and efficient manner. At the same time, by maintaining the current satellite allocation for 200 megahertz without qualification,<sup>12</sup> and by ensuring that all necessary technical, transition-related, and cost-recovery issues are addressed, the Commission would keep the country's video distribution system on firm footing. Taken together, these actions would accomplish the Commission's key objectives – i.e., maximizing the public interest by providing additional spectrum for 5G, safeguarding the video transmission industry and the

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reallocate C-Band spectrum through private transactions between satellite companies and wireless carriers is deeply flawed.").

<sup>9</sup> See Pai C-Band Auction Letter.

<sup>10</sup> See, e.g., Letter from Brian M. Josef, Comcast Corporation, to Marlene H. Dortch, Secretary, FCC, GN Docket Nos. 18-122 et al., Attach. at 6 (Apr. 30, 2019).

<sup>11</sup> Under either approach, incumbent C-Band licensees and registered earth station operators would be compensated for relocation-related costs. Under an incentive auction, the release of a portion of reverse auction proceeds could be conditioned on completion of the repacking into the remaining C-Band spectrum. See *infra* n.51. Under a more traditional auction (following a modification of incumbent C-Band licenses), winning bidders could be directly responsible for paying relocation costs. See *infra* nn.37-38, 50.

<sup>12</sup> As discussed in more detail below, see *infra* Part II, it is critical for the transition that stakeholders receive assurances through a Commission order and thus have certainty that at least 200 megahertz of C-Band spectrum will be preserved for video distribution and protected from degradation and harmful interference. Any proposed reallocation of any portion of this remaining 200 megahertz would jeopardize the current and future ecosystem for video delivery, thereby harming countless businesses and many millions of U.S. customers who currently subscribe to and enjoy these services.

many consumers it serves, reducing litigation risk, and protecting American taxpayers, all while ensuring that incumbent satellite operators and registered earth station operators are appropriately compensated for their costs and incentivized to transition expeditiously.

Like others, Comcast/NBCUniversal has multiple interests in this proceeding and understands the significant task confronting the Commission as it balances many legitimate interests and policy goals that have been presented. Consistent with Chairman Pai's principles,<sup>13</sup> Comcast/NBCUniversal supports the solutions outlined below, as they put the Commission, as the expert agency, in charge of this critical effort to bring new services to American consumers.

## **I. The Commission Should Conduct a Public Auction of C-Band Spectrum**

A Commission-run public auction would balance the multiple, sometimes competing, goals of the many parties that have interests in the band. Importantly, a significant number of participants in this proceeding agree that 300 megahertz of spectrum can be reallocated,<sup>14</sup> and that C-Band licensees and registered earth station operators that utilize the band to distribute video must be protected and appropriately compensated for all transition-related costs.<sup>15</sup> Various

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<sup>13</sup> See Pai C-Band Auction Letter at 1.

<sup>14</sup> See, e.g., AT&T et al. Oct. 29 Letter; Letter from Carlos M. Nalda, Eutelsat S.A., to Marlene H. Dortch, Secretary, FCC, GN Docket No. 18-122 et al., at 2 (Nov. 7, 2019); Letter from Steve B. Sharkey, T-Mobile USA, Inc., to Marlene H. Dortch, Secretary, FCC, GN Docket No. 18-122 (Oct. 24, 2019); Comments of Ericsson, GN Docket No. 18-122, at 1-2 (Oct. 23, 2019); Letter from Alexi Maltas, Competitive Carriers Association, to Marlene H. Dortch, Secretary, FCC, GN Docket No. 18-122, at 2 (Oct. 18, 2019) ("CCA Oct. 18 Letter"); Letter from Scott Blake Harris, Counsel to the Small Satellite Operators, to Marlene H. Dortch, Secretary, FCC, GN Docket No. 18-122, at 1 (Oct. 10, 2019); Letter from Grant B. Spellmeyer, U.S. Cellular, to Marlene H. Dortch, Secretary, FCC, GN Docket No. 18-122, at 1 (Sept. 25, 2019).

<sup>15</sup> See, e.g., Letter from Christina H. Burrow, Counsel to The Church of Jesus Christ of Latter-day Saints, to Marlene H. Dortch, Secretary, FCC, GN Docket No. 18-122, Attach. at 4 (Oct. 9, 2019); Letter from John R. Feore, Counsel to ABC Television Affiliates Association, CBS Television Network Affiliates Association, FBC Television Affiliates Association, and NBC Television Affiliates, to Marlene H. Dortch, Secretary, FCC, GN Docket No. 18-122, at 1 (Sept. 26, 2019); Letter from Paul Jamieson, Altice USA, Inc., to Marlene H. Dortch, Secretary, FCC, GN Docket No. 18-122 et al., at 5 (Aug. 14, 2019); Letter from Matthew S. DelNero, Counsel to the Content Companies, to Marlene H. Dortch, Secretary, FCC, GN Docket No. 18-122, Attach. at 1-2 (June 7, 2019); Comments of Charter Communications, Inc., GN Docket Nos. 18-122, at 1-2 (Oct. 29, 2018); Comments of Comcast Corporation and NBCUniversal Media, LLC, GN Docket Nos. 18-122, 17-183, at 3 (Oct. 29, 2018) ("Comcast/NBCUniversal Comments"); see also Reply Comments of NCTA – The Internet & Television Association, GN Docket No. 18-122, at 2-3 (Dec. 11, 2018) ("NCTA Reply Comments") (citing to the many

parties also agree that satellite operators should be compensated for relinquishing spectrum usage rights in the band, with some suggesting that such compensation should exceed those operators' actual transition costs to incentivize a smooth transition.<sup>16</sup> And commenters agree about the importance of moving expeditiously, yet prudently, to reallocate spectrum.<sup>17</sup> There is less agreement about exactly how sale proceeds would be distributed, and to what extent national priorities (such as deposits to the U.S. Treasury and/or funding for rural broadband expansion) should take precedence over windfall profits.<sup>18</sup> And, of course, parties continue to diverge on

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initial comments that “reflect widespread agreement that the C-band is essential to providing important video programming services.”).

<sup>16</sup> See, e.g., AT&T et al. Oct. 29 Letter, Attach. at 1-2; Letter from Jeffrey H. Blum, DISH Network Corporation, to Marlene H. Dortch, Secretary, FCC, GN Docket No. 18-122, at 2 (Oct. 25, 2019) (“DISH Oct. 25 Letter”); Letter from Alexi Maltas, Competitive Carriers Association, Ross Lieberman, ACA Connects – America’s Communications Association, and Elizabeth Andrion, Charter Communications, Inc. to Marlene H. Dortch, Secretary, FCC, GN Docket No. 18-122, Attach. at 2 (Oct. 7, 2019) (“ACA/CCA/Charter Oct. 7 Letter”); Comments of the C-Band Alliance, GN Docket Nos. 18-122 et al., at 17 (Aug. 7, 2019) (“CBA Comments”); Comments of NTCA – The Rural Broadband Association, GN Docket No. 18-122 et al., at 4 (Aug. 7, 2019) (“NTCA Comments”).

<sup>17</sup> See, e.g., CBA Oct. 28 Ex Parte at 1; ACA/CCA/Charter Oct. 7 Letter, Attach. at 15; AT&T et al. Oct. 29 Letter, Attach. at 2; Letter from William H. Johnson, Verizon, to Marlene H. Dortch, Secretary, FCC, GN Docket No. 18-122, at 1 (Nov. 1, 2019) (“Verizon Nov. 1 Letter”).

<sup>18</sup> See, e.g., Press Release, Rep. Mike Doyle, Bipartisan E&C Members Introduce Bill to Require Public Auction of C-Band (Oct. 24, 2019), <https://doyle.house.gov/media/press-releases/bipartisan-ec-members-introduce-bill-require-public-auction-c-band> (“This bill would ensure a transparent and fair process [to reallocate C-Band spectrum] that would generate billions of dollars in revenue to address the urgent needs of millions of Americans such as building out broadband internet service in rural America while protecting users of incumbent services.”); Letter from Senator John Kennedy to President Donald Trump (July 18, 2019), <https://docs.fcc.gov/public/attachments/DOC-360613A2.pdf> (“It seems preposterous to me that given our growing national debt we would send a significant portion of the proceeds from a sale of public [C-Band] spectrum to foreign owned businesses.”); Comments of the Competitive Carriers Association, GN Docket No. 18-122 et al., at 33 n.110 (July 3, 2019) (“CCA Comments”) (arguing that federal law requires that proceeds from the sale of 3.7-4.2 GHz licenses “be deposited in the Treasury”). But see Reply Comments of the C-Band Alliance, GN Docket No. 18-122 et al., at 4 (Dec. 7, 2018) (arguing that avoiding a “prolonged administrative process” should take priority over “revenue to the Treasury”). See also Caleb Henry, *Eutelsat Leaves C-Band Alliance As Spectrum Decision Looms*, SpaceNews (Sept. 3, 2019), <https://spacenews.com/eutelsat-leaves-c-band-alliance-as-spectrum-decision-looms> (quoting statements by Eutelsat’s CEO indicating that Eutelsat’s decision to withdraw from the C-Band Alliance was related to a lack of “consensus [] on a voluntary contribution to the U.S. Treasury”).

whether the Commission itself should run an auction or allow CBA to sell flexible use licenses through a novel process.<sup>19</sup>

Comcast/NBCUniversal submits that an FCC-run public auction would best meet the Commission's public interest obligations, while putting the Commission on sound legal footing. In fact, section 309(j), which provides broad authority to rely on competitive bidding in the event of mutually exclusive license applications, presents two viable options for repurposing part of the C-Band for terrestrial mobile broadband services: (1) an incentive auction held pursuant to section 309(j)(8)(G), and (2) a more traditional auction of reallocated spectrum based on the general competitive bidding framework under section 309(j)(1).

#### **A. The Commission Should Consider Conducting an Incentive Auction**

An incentive auction, as contemplated in the Notice of Proposed Rulemaking ("NPRM"),<sup>20</sup> would enable incumbent C-Band licensees to recover their relocation costs and provide them with a percentage of auction proceeds above and beyond those costs as a means of encouraging them to voluntarily relinquish their spectrum usage rights. Such an approach is not only authorized by the Communications Act, but also supported by Commission precedent.<sup>21</sup> As

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<sup>19</sup> Compare, e.g., ACA Oct. 22 Letter at 2 (advocating for a public auction that "guarantees hefty proceeds to the U.S. Treasury"), and CCA Oct. 18 Letter at 1 (supporting a "transparent, FCC-led public auction consistent with Congressionally-authorized processes"), with Verizon Nov. 1 Letter at 1-2 (arguing that the two "private auction" approaches proposed by the C-Band Alliance and AT&T, respectively, are "legally defensible"). See also AT&T Nov. 1 Letter at 1-2 (not opposing a private auction but noting the "non-trivial legal argument[]" that a private auction would be "an unlawful subdelegation of the Commission's duties").

<sup>20</sup> See *Expanding Flexible Use of the 3.7 to 4.2 GHz Band*, Order and Notice of Proposed Rulemaking, 33 FCC Rcd. 6915 ¶¶ 58-65, 103-105 (2018) ("NPRM").

<sup>21</sup> Other parties in this proceeding agree that the Commission can successfully design an incentive auction in a manner that satisfies Section 309(j)(8)(G)'s requirements. See, e.g., Letter from Alexi Maltas, Competitive Carriers Association, Ross Lieberman, ACA Connects – America's Communications Association, and Elizabeth Andron, Charter Communications, Inc., to Marlene H. Dortch, Secretary, FCC, GN Docket No. 18-122, at 6-7 (July 2, 2019) ("ACA/CCA/Charter July 2 Letter") (suggesting an incentive auction as one of two Commission-run auction options to reallocate C-Band spectrum); Comments of ACA Connects – America's Communications Association, GN Docket No. 18-122, at 10-13 (July 3, 2019) ("Not only does the Commission have authority to conduct an incentive auction; it should do so."); Reply Comments of T-Mobile USA, Inc., GN Docket No. 18-122, at 3 (Dec. 11, 2018); DISH Oct. 25 Letter at 2 ("DISH agrees with commenters that support an incentive auction format as one possible solution."); NTCA Comments at 4 ("NTCA is also supportive of an incentive auction to encourage satellite providers to part with spectrum. The Commission has authority under the Communications Act to provide incentives to clear spectrum."); Comments of the Public Interest Spectrum Coalition, GN Docket No. 18-122, at 25-26 (Aug. 7, 2019) ("PISC Comments") (arguing that the Commission has authority to conduct an incentive auction); Comments of

the Commission has previously recognized, “Congress [has] expressly authorized [it] to conduct incentive auctions beyond the broadcast television spectrum incentive auction.”<sup>22</sup> Under section 309(j)(8)(G), “the Commission may encourage a licensee to relinquish voluntarily some or all of its licensed spectrum usage rights in order to permit the assignment of new initial licenses subject to flexible-use service rules by sharing with such licensee a portion, based on the value of the relinquished rights as determined in the reverse auction . . . , of the proceeds . . . from the use of a competitive bidding system. . . .”<sup>23</sup> The Commission may utilize this incentive auction mechanism where (i) it “conducts a reverse auction to determine the amount of compensation that licensees would accept in return for voluntarily relinquishing spectrum usage rights,” and (ii) “at least two competing licensees participate in the reverse auction.”<sup>24</sup>

In any incentive auction, there is no guarantee that the statutory requirements will be met until the auction begins. Nevertheless, satisfying these requirements should be achievable in a C-Band incentive auction. In the NPRM, the Commission asked whether the C-Band’s nonexclusive licensing regime could discourage incumbent satellite licensees from effectively competing against one another and/or encourage them to inflate spectrum valuations, and it sought comment on those potential impediments to an incentive auction.<sup>25</sup> Such considerations primarily relate to auction design, not legal authority.<sup>26</sup> The Commission has the technical

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United States Cellular Corporation, GN Docket No. 18-122, at 2 (Dec. 11, 2018) (stating that the Commission can maximize the amount of 3.7-4.2 GHz spectrum for terrestrial flexible use “only through the use of an incentive auction-based reallocation mechanism”); Reply Comments of Dynamic Spectrum Alliance, GN Docket No. 18-122, at 17 (Dec. 11, 2018) (calling the incentive auction framework described in the NPRM as “entirely feasible,” and arguing that an incentive auction could be completed “within the same general timeframe as the private sale proposal”).

<sup>22</sup> E.g., *Use of Spectrum Bands Above 24 GHz For Mobile Radio Services*, Fourth Further Notice of Proposed Rulemaking, 33 FCC Rcd. 7674 ¶ 44 (2018) (“*Spectrum Frontiers NPRM*”). Accordingly, the Commission will utilize an incentive auction to grant new usage rights in the 39 GHz band. *Id.* ¶¶ 9, 16. The Commission also recently sought comment regarding the use of an incentive auction to reduce encumbrances in the 900 MHz band. *See Review of the Commission’s Rules Governing the 896-901/935-940 MHz Band*, Notice of Proposed Rulemaking, 34 FCC Rcd. 1550 ¶ 48 (2019).

<sup>23</sup> 47 U.S.C. § 309(j)(8)(G)(i).

<sup>24</sup> *Id.* § 309(j)(8)(G)(ii).

<sup>25</sup> NPRM ¶ 59. Relatedly, some parties have asserted that there is a potential “holdout” problem that might impede the success of an incentive auction. *See, e.g.*, Comments of Eutelsat S.A., GN Docket No. 18-122 et al., at 12-13 (Oct. 29, 2018).

<sup>26</sup> CBA has challenged the lawfulness of an incentive auction to compensate satellite licensees under Section 309(j)(8)(G)(ii), relying on the NPRM’s questions about satellite providers’ nonexclusive licensing framework. *See* CBA Comments at 17-18. CBA attempts to bootstrap the NPRM’s questions into a conclusion that an incentive auction is unlawful because satellite providers purportedly would not compete to supply spectrum, but it cites no legal



expertise and auction experience to structure an incentive auction that establishes the value of terrestrial usage rights through a forward auction and appropriately encourages incumbent C-Band licensees to relinquish a substantial portion of their existing spectrum usage rights through a reverse auction.<sup>27</sup> Given the extraordinary value of terrestrial usage rights to support 5G services,<sup>28</sup> there is every reason to expect that incumbent C-Band licensees would elect to participate in a reverse auction, thereby ensuring a successful policy outcome and satisfying the statutory requirement that “at least two competing licensees” do so. That is all section 309(j)(8)(G) requires.

As the Commission recently concluded with respect to the upcoming incentive auction for 39 GHz licenses, as long as more than one incumbent licensee commits to relinquish its spectrum usage rights, there will be two licensees competing in the reverse auction portion of the incentive auction for purposes of complying with the requirements of section 309(j)(8)(G).<sup>29</sup> In the underlying Notice of Proposed Rulemaking in that proceeding, the Commission further observed:

In the broadcast television spectrum incentive auction, the Commission concluded that at least two [competing] licensees participate in the reverse auction so long as more than one non-commonly controlled party qualifies as an applicant to participate in the auction. This is so because any qualified applicant that bids in the auction must take into account the presence of another qualified applicant that has the opportunity to bid, regardless of whether the second applicant in fact bids.<sup>30</sup>

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limitation in section 309(j)(8)(G), nor Commission precedent, establishing that “non-exclusive, non-rivalrous use” is a bar to satisfying the statute’s requirement.

<sup>27</sup> As noted above, several parties have expressed support for holding an incentive auction that would compensate incumbent C-Band licensees for relinquishing their right to provide satellite transmission services in up to 300 megahertz of the C-Band. *See supra* n.21. The record also includes a more complex incentive auction proposal that would provide incentive payments to both C-Band licensees and registered earth station operators. *See* Letter from Steve B. Sharkey, T-Mobile USA, Inc., to Marlene H. Dortch, Secretary, FCC, GN Docket No. 18-122, at 6-14 (July 12, 2019).

<sup>28</sup> *See, e.g.,* Mike Dano, *FCC Preps for What Could Be Biggest Spectrum Auction Ever*, Light Reading (Sept. 25, 2019), <https://www.lightreading.com/mobile/5g/fcc-preps-for-what-could-be-biggest-spectrum-auction-ever/d/d-id/754386> (“A C-Band auction could raise at least \$50 billion in gross bids, according to a new calculation from the Wall Street analysts at New Street Research.”).

<sup>29</sup> *Use of Spectrum Bands Above 24 GHz For Mobile Radio Services*, Fourth Report and Order, 33 FCC Rcd. 12168 ¶ 9 (2018).

<sup>30</sup> *Spectrum Frontiers NPRM* ¶ 50.

The Commission found that the “same conclusion should apply” in the 39 GHz incentive auction,<sup>31</sup> and the same reasoning is applicable in the C-Band context. Moreover, to the extent CBA argues that the statutory reference to “competing licensees” should refer to entities that compete for customers *in the marketplace*, rather than entities that compete *to submit bids in a reverse auction*, that requirement also would be satisfied here.<sup>32</sup>

Finally, there is support in the record for modifying existing C-Band licenses and conducting a traditional auction of terrestrial usage rights (as discussed in detail in the following section), while requiring winning bidders to pay above-cost compensation to incumbent licensees as a condition of the new licenses.<sup>33</sup> Such an approach could offer an alternative to the structure authorized by section 309(j)(8)(G).

#### **B. The Commission Also Should Consider Auctioning 280 Megahertz of C-Band Spectrum in a Traditional Auction**

Alternatively, the Commission could modify the C-Band incumbents’ licenses pursuant to section 316 of the Act and then hold a traditional auction, without any above-cost incentive payments.<sup>34</sup> Under this option, the Commission would rely on its public interest authority to

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<sup>31</sup> *Id.*

<sup>32</sup> See NPRM ¶ 63 (noting that “earth stations can and do switch providers, suggesting that competition currently exists in the C-band,” based on comments filed by ACA).

<sup>33</sup> See Letter from Elizabeth Andrion, Charter Communications, Inc. to Marlene H. Dortch, Secretary, FCC, GN Docket No. 18-122, at 6 & nn.18-19 (Feb. 22, 2019) (“Charter Feb. 22 Letter”); Letter from Steve B. Sharkey, T-Mobile USA, Inc., to Marlene H. Dortch, Secretary, FCC, GN Docket No. 18-122, at 8 (Nov. 15, 2019). In the event the Commission elects to provide such above-cost, incentive compensation pursuant to its broad public interest authority, it should make such payments contingent on C-Band licensees’ completion of all necessary actions to ensure that the remaining 200 megahertz of C-Band spectrum devoted to video distribution will be protected from degradation and harmful interference.

<sup>34</sup> See NPRM ¶ 111 (seeking comment on various auction proposals and “other mechanisms for transitioning all or part of the 3.7-4.2 GHz band for wireless broadband use”); Charter Feb. 22 Letter at 4-5 & n.13 (proposing that the Commission allocate terrestrial wireless broadband service in the C-Band, assign licenses via competitive bidding under Section 309(j)(1), and rely on Section 316 to modify existing licenses to the extent necessary); *see also* ACA/CCA/Charter July 2 Letter at 5 (“The Commission could exercise its clear statutory authority to reallocate the C-band for terrestrial use and then award the resulting terrestrial licenses through a system of competitive bidding that satisfies the requirements of the Communications Act.”); NTCA Comments at 4 (“The Commission has clear statutory authority to reallocate the C-band for terrestrial use and then award the resulting terrestrial licenses through a system of competitive bidding that satisfies the requirements of the Communications Act. The Commission has utilized this approach for decades to successfully repurpose a wide array of spectrum bands”); PISC Comments at 4-5 (“The speediest, fairest and most straightforward option consistent with the

determine that satellite operations in the C-Band require only 200 megahertz and that the remaining 300 megahertz would be utilized more efficiently if reallocated for terrestrial broadband (5G) services.<sup>35</sup> The Commission then would award licenses for such 5G services based on competitive bidding, as authorized by section 309(j)(1).<sup>36</sup> Consistent with well-established precedent, the Commission could require winning bidders to compensate incumbent satellite licensees and registered earth station operators based on their transition-related costs, pursuant to private negotiations and with the support of a clearinghouse or similar mechanism.<sup>37</sup> If such negotiations were unsuccessful, the Commission could, as it has in the past, involuntarily relocate any holdout incumbent(s) while still requiring new entrants to reimburse their

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Commission's statutory authority is a traditional forward auction that consolidates FSS incumbents into the upper portions of the band and requires auction winners to reimburse incumbents for any eligible and reasonable costs.").

<sup>35</sup> See, e.g., Charter Feb. 22 Letter at 4-5 & n.13.

<sup>36</sup> See *Redevelopment of Spectrum to Encourage Innovation in the Use of New Telecommunications Technologies*, Third Report and Order and Memorandum Opinion and Order, 8 FCC Rcd. 6589 ¶¶ 13-16 (1993) ("*Emerging Technologies Third Report and Order*"); see also Comments of Dynamic Spectrum Alliance, GN Docket No. 18-122, at 5-6 (July 3, 2019).

<sup>37</sup> See *Emerging Technologies Third Report and Order* ¶¶ 13-16; see also PISC Comments at 20-27. For a thorough economic assessment of the various approaches to incumbent relocation and related issues, see P. Cramton et al., *Efficient Relocation of Spectrum Incumbents*, 41 J.L. & Econ. 647 (Oct. 1998).

relocation-related costs.<sup>38</sup> This approach would ensure that all affected stakeholders are made whole.<sup>39</sup>

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Importantly, as other parties have recently documented,<sup>40</sup> either type of auction process can proceed quickly enough to enable the deployment of 5G services in the repurposed portion

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<sup>38</sup> See, e.g., *Service Rules for the 698-762 and 777-792 Bands*, Second Report and Order, 22 FCC Rcd. 15289 ¶¶ 128-34 (2007) (modifying licenses despite opposition from incumbent licensee where such a holdout threatened to prevent realization of what the Commission “determine to be the optimal band plan”); *Amendment of Part 2 of the Commission’s Rules to Allocate Spectrum Below 3 GHz for Mobile and Fixed Services to Support the Introduction of New Advanced Wireless Services, including Third Generation Wireless Systems*, Second Report and Order, 17 FCC Rcd. 23193 ¶¶ 43-44, n.153 (2002) (adopting involuntary relocation procedures requiring new entrants to “guarantee payment of all relocation costs” to incumbent licensees); *Redesignation of the 17.7-19.7 GHz Frequency Band, Blanket Licensing of Satellite Earth Stations in the 17.7-20.2 GHz and 27.5-30.0 GHz Frequency Bands, and the Allocation of Additional Spectrum in the 17.3-17.8 GHz and 24.75-25.25 GHz Frequency Bands for Broadcast Satellite-Service Use*, Report and Order, 15 FCC Rcd. 13430 ¶¶ 81-82 (2000) (“Under involuntary relocation, a terrestrial fixed station must relocate provided that the FSS licensee guarantees payment of relocation costs, completes all activities necessary for implementing the replacement facilities, and builds and tests the replacement system for comparability.”); see also, e.g., Charter Feb. 22 Letter at 5 & n.13 (describing the Commission’s well-established authority to utilize such an approach).

<sup>39</sup> Even if the Commission decided to rely on section 309(j)(8)(G) to hold a public incentive auction, it could take a belt-and-suspenders approach by simultaneously seeking comment on this more traditional modification/auction option to ensure that it will be in a position to repurpose a substantial portion of the C-Band in the event the incentive auction were ultimately unsuccessful. The Commission has successfully established such fallback options in the past. For example, the Commission created an analogous default regime in creating the AWS-4 service in the 2 GHz band, which repurposed mobile satellite service (“MSS”) spectrum for terrestrial broadband use. *Service Rules for Advanced Wireless Services in the 2000-2020 MHz and 2180-2200 MHz Band*, Report and Order and Order of Proposed Modification, 27 FCC Rcd. 16102 ¶¶ 17-19 (2012). While AWS-4 authority currently is held only by the two 2 GHz MSS licensees (controlled by DISH Network), the Commission created a comprehensive default licensing regime and concomitant Part 1 auction procedures that will be used to the extent that either or both of these licensees default on AWS-4 buildout requirements. See *id.* Here, given the Commission’s goal of making available substantial mid-band spectrum for 5G deployment without any undue delay, the Commission could consider issuing a Further Notice along with any order establishing an incentive auction to explore this modification/auction alternative as a fallback concurrent with its planning for the incentive auction.

<sup>40</sup> See, e.g., Letter from Steve B. Sharkey, T-Mobile USA, Inc., to Marlene H. Dortch, Secretary, FCC, GN Docket No. 18-122, at 2-4 (Oct. 21, 2019) (explaining that a public

of the C-Band on a timeframe commensurate with CBA's projections. Indeed, there are many advantages of a Commission-led auction that likely would *reduce* timing-related risks overall. For instance, the record identifies significant legal risks associated with CBA's proposal, and attendant delays from inevitable appellate challenges,<sup>41</sup> in contrast to utilization of tried-and-true Commission-led public auction processes. In addition, by controlling the auction and its revenues the Commission can ensure that it retains authority over disbursement of payments to affected stakeholders.<sup>42</sup> And by potentially putting wireless licensees in charge of the repacking process, the Commission would be realizing the correct alignment of incentives. By contrast, there would be no assurance in a CBA private sale that the clearing process (which is a prerequisite to deploying new services in the band) would proceed as quickly or smoothly in the absence of the Commission's oversight and active participation.<sup>43</sup>

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incentive auction process can proceed as quickly as a private auction, and citing examples in which the Commission commenced auctions seven or eight months after adopting service rules); DISH Oct. 25 Letter at 2 (“[A]ny arguments that a private sale is necessary to speed the spectrum to market are overstated.”); ACA Oct. 21 Letter at 8 (asserting that the Commission has the means “to run an auction as fast as, or faster than, CBA can”).

<sup>41</sup> See, e.g., AT&T Nov. 1 Letter at 1-2 (noting legal concern that a private auction would be “an unlawful subdelegation of the Commission’s duties”); Charter Feb. 22 Letter at 7-13 (describing various risks arising from CBA private-auction proposals and attendant delays from protracted litigation).

<sup>42</sup> For example, the Wireless Telecommunications Bureau historically has administered the clearance of AWS spectrum and associated cost-reimbursement through Commission-approved clearinghouses set up in strict accordance with Commission-mandated relocation and cost reimbursement requirements. See 47 C.F.R. §§ 27.1160-27.1190.

<sup>43</sup> If an incumbent C-Band licensee failed to meet a contractual commitment to clear spectrum in a relevant geographic area by the agreed-upon deadline, for example, the winning bidder in a private auction might turn to courts of general jurisdiction for relief, even though such courts do not have specialized expertise on spectrum-related matters and often have lengthy discovery processes, backlogs, and appeals that preclude rapid resolution of disputes. Cf. Reply Comments of Paul Litchfield, GN Docket No. 18-122, at 23 (Dec. 11, 2018) (describing a non-public approach to repurposing C-Band spectrum as a “litigation time bomb waiting to go off”). By the same token, if a wireless carrier participating in a private auction submitted a down payment to an incumbent C-Band licensee, it would be unclear what recourse it would have if the licensee became insolvent or subject to a third-party lien and was accordingly unable to return the proceeds or compensate FSS operators and earth station operators adequately.

## II. The Commission Must Protect Incumbent FSS Users

The record in this proceeding reflects widespread agreement that the C-Band is a vital means of delivering video to more than 100 million American households.<sup>44</sup> Comcast/NBCUniversal utilizes the C-Band extensively for video programming purposes, and Comcast's Headend-in-the-Sky service "aggregates and transmits digital video programming via satellite to Comcast headends as well as smaller and often rural non-Comcast cable operators."<sup>45</sup> Numerous other parties, including CBA itself, have also cited the importance of the band for video delivery.<sup>46</sup> The Affiliates Associations contend that any reallocation plan must "ensure (1) continued, smooth, reliable delivery of satellite video in the band, and (2) full protection for the broadcasters, content creators, MVPDs, and the hundreds of millions of consumers who rely on access to the content those incumbents create and distribute in the C-band."<sup>47</sup> Given the importance of the C-Band to consumers and existing users, the Commission must ensure that these video distribution services are not harmed in any transition to a repacked band. In particular, the Commission should ensure without qualification that remaining C-Band users' operations will not be disrupted again in the future.

The Commission should make clear in its final order that it does not and will not propose to reallocate any additional C-Band spectrum beyond 300 megahertz; such assurances are essential to provide certainty to remaining C-Band users that have already faced more than two years of uncertainty about the future of the band.<sup>48</sup> Satellite users must have guaranteed access

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<sup>44</sup> See NCTA Reply Comments at 2-3 (citing to the many initial comments that "reflect widespread agreement that the C-band is essential to providing important video programming services."); see also Comcast/NBCUniversal Reply Comments at 7; Letter from Matthew S. DelNero, Counsel to the Content Companies, to Marlene H. Dortch, Secretary, FCC, GN Docket No. 18-122, at 1 (Nov. 14, 2019) ("The C-Band forms the backbone of the content distribution system in the United States.").

<sup>45</sup> Comcast/NBCUniversal Comments at 3-4.

<sup>46</sup> See CBA Nov. 8 Letter, Attach. at 2; Letter from Rick Kaplan, National Association of Broadcasters, to Marlene H. Dortch, Secretary, FCC, GN Docket No. 18-122, at 1 (Nov. 6, 2019) ("An outcome in this proceeding that eliminates or encumbers the C-band risks disrupting service to hundreds of millions of Americans who rely on it today"); Comments of the Content Companies, GN Docket No. 18-122, at 2 (Aug. 7, 2019) ("Content Companies Comments") (describing the C-Band as "the satellite-based backbone for video delivery that some 120 million American households depend upon, regardless of how they consume video content").

<sup>47</sup> Joint Reply Comments of the ABC Television Affiliates Association, CBS Television Network Affiliates Association, FBC Television Affiliates Association, and NBC Television Affiliates, GN Docket No. 18-122, at 2 (Aug. 14, 2019).

<sup>48</sup> See generally *Expanding Flexible Use in Mid-Band Spectrum Between 3.7 and 24 GHz*, Notice of Inquiry, 32 FCC Rcd. 6373 (2017). C-Band FSS users have also observed as the proposed clearing target has moved from 100 megahertz, to 200 megahertz, to 300 megahertz or

to the remaining 200 megahertz of spectrum that will be critical to continuing and future innovative video operations. Along with many other parties with equities in the band, Comcast/NBCUniversal has invested significant time and resources working with CBA and its members, ACA Connects, and others to help achieve the Commission's goals, even though those goals have the potential to disrupt the video distribution services upon which tens of millions of Americans rely.<sup>49</sup> Comcast/NBCUniversal, along with other earth station operators, is prepared to undertake substantial efforts to facilitate a C-Band transition, and is willing to make compromises to do so (e.g., adopting new compression technologies, higher order modulation, and migrating programming to other services and satellites), bearing all of the risk that these measures will be implemented without issue. However, significant questions remain around whether, despite these technical compromises, 300 megahertz of spectrum can be reallocated without disrupting or degrading video distribution services. To ensure success, the Commission must adopt clear rules that provide adequate time for all stakeholders to plan for the transition and post-transition operations, and must ensure that video programming distributors will continue to have unqualified access to the remaining 200 megahertz for FSS use.

In addition, incumbent C-Band licensees and registered earth station operators should be made whole for their transition costs. The Commission could utilize its time-tested Emerging Technologies framework to require winning bidders to reimburse incumbents for their transition costs.<sup>50</sup> In an incentive auction, the Commission could condition the release of a portion of

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more over the past two years. *See supra* note 2; *see also* ACA/CCA/Charter July 2 Letter at 1 (proposing to reallocate 370 megahertz of C-Band spectrum.).

<sup>49</sup> *See, e.g.*, Content Companies Comments at i (“CBS Corporation, Discovery, Inc., FOX Corporation, The Walt Disney Company, Univision Communications Inc., and Viacom Inc. (collectively, the ‘Content Companies’) have participated actively throughout this proceeding to find a solution that will both protect reliable video delivery in the U.S. and free up mid-band spectrum for 5G uses.”).

<sup>50</sup> *See, e.g., Redevelopment of Spectrum to Encourage Innovation in the Use of New Telecommunications Technologies*, First Report and Order and Third Notice of Proposed Rulemaking, 7 FCC Rcd. 6886 (1992); *see also* Letter from Gregory A. Lewis, National Public Radio, to Marlene H. Dortch, Secretary, FCC, GN Docket No. 18-122, at 1 (Aug. 28, 2019) (explaining that the Emerging Technologies framework “represents the appropriate starting point” to ensure that C-Band incumbents are properly reimbursed for increased operational costs, and suggesting that this framework’s success contributed to Congress’s decision to give the Commission general auction authority); Comments of Charter Communications, Inc., GN Docket No. 18-122, at 7-10 (July 3, 2019) (arguing that the Commission should ensure that incumbent C-Band receive-only earth station operators should be compensated for reallocation costs, consistent with Emerging Technologies precedent); Comments of the Open Technology Institute at New America, GN Docket No. 18-122, at 15-17 (July 3, 2019) (contending that the Emerging Technologies approach has been upheld by courts and successfully used “multiple times over the past two decades,” and that the Commission has ample authority to “repeat a variation” of this approach for 3.7-4.2 GHz spectrum); CCA Comments at 4 n.8 (citing, among others, the Emerging Technologies framework as “one of the widely accepted, statutorily

reverse auction proceeds to winning reverse auction bidders on the completion of the repacking into the remaining C-Band spectrum, as CBA has essentially proposed.<sup>51</sup>

Finally, it is essential that the Commission adopt specific service rules, including technical rules, that fully address interference prevention, detection, mitigation, and enforcement to protect C-Band users from potential interference from adjacent wireless services. As noted above, many of the technical rules necessary to protect incumbent C-Band users from harmful interference remain open, and they may require further public comment to get them right.<sup>52</sup> For example, relying on wireless carriers to detect and mitigate interference, without other proven measures, is not a workable solution. Moreover, effective detection and mitigation rules should streamline identification of interfering signals and their sources, while providing certainty around timing for eliminating harmful interference. Harmful interference that degrades video services must be resolved in seconds or minutes – programmers and tens of millions of affected consumers cannot endure hours or days waiting for 5G providers to identify and cease interfering transmissions.

### III. Conclusion

Comcast/NBCUniversal agrees with Chairman Pai that the Commission should proceed with a public auction of the C-Band.<sup>53</sup> The public interest requires the Commission to proceed in a legally sustainable manner to both promote 5G services and minimize disruption of video services in the C-Band. After two years, CBA has failed to propose a path that meets these two objectives. It is now time for the Commission to adopt an efficient, transparent, and fair spectrum reallocation on par with the successes produced by the time-tested system of

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authorized methods of reallocating spectrum for new uses,” and suggesting that the Commission should adopt one of these accepted approaches for the 3.7-4.2 GHz band).

<sup>51</sup> See Reply Comments of the C-Band Alliance, GN Docket No. 18-122, at 18-19 (July 18, 2019) (“pledg[ing] to earmark an amount equal to 120% of the estimated spectrum clearing costs to pay receive-only earth station expenses related to the migration of a portion of the C-band from FSS to terrestrial 5G use,” and to also “establish[] a completion fund to cover any clearing expenses incurred by receive-only earth station operators after proceeds from the proposed market-based mechanism are distributed”) (internal quotations omitted).

<sup>52</sup> See, e.g., AT&T Nov. 1 Letter at 5 (arguing that the technical and service rules must “adequately balance the needs of wireless carriers providing 5G services against the interests of existing users in protecting their services from interference,” and that “[a] variety of other difficult technical questions also remain”); Letter from Stephen Diaz Gavin, Counsel to PSSI Global Services, LLC, to Marlene H. Dortch, Secretary, FCC, GN Docket No. 18-122, at 1 (Oct. 18, 2019) (“[T]here is still no solution as to how a transportable earth station like those operated by PSSI can avoid operating near high power 5G mobile nodes, and incurring signal degradation, distortion, multi-path interference and harmful out-of-band emissions from 5G terrestrial mobile operations operating on C-Band frequencies.”).

<sup>53</sup> Pai C-Band Auction Letter at 1.



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competitive bidding. In addition, the Commission must adopt specific rules to protect the remaining C-Band users. A Commission-run auction of up to 280 megahertz of C-Band spectrum (with unqualified assurances in the Commission's final order not to reallocate any part of the remaining 200 megahertz), and robust protections to prevent future disruption of video distribution, would maximize the interests of the wireless industry, the satellite industry, the video industry, and most importantly American consumers and taxpayers.

Please direct any questions to the undersigned.

Respectfully Submitted,

*/s/ Kathryn A. Zachem*

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