

**Before the  
FEDERAL COMMUNICATIONS COMMISSION  
Washington, D.C. 20554**

In the Matter of	)	
	)	
Expanding Flexible Use of the	)	GN Docket No. 18-122
3.7 GHz to 4.2 GHz Band	)	
	)	

**COMMENTS OF THE CONTENT COMPANIES**

CBS Corporation, Discovery, Inc., The Walt Disney Company, Time Warner Inc., 21st Century Fox, Inc., Univision Communications Inc., and Viacom Inc. (collectively, the “Content Companies”) file these comments in response to the Commission’s Public Notice (“Notice”) in the above-captioned proceeding, which seeks comment for the study required by Section 605(b) of the Making Opportunities for Broadband Investment and Limiting Excessive and Needless Obstacles to Wireless Act (“MOBILE NOW” Act).<sup>1</sup>

The Content Companies rely on fixed satellite service (“FSS”) downlink transmissions in the 3.7-4.2 GHz spectrum (“C-band”) to ensure the reliable distribution of some of the nation’s most popular sports, news, and entertainment programming to more than 100 million American television households.<sup>2</sup> As creators of this content, which is also consumed on mobile devices, the Content Companies welcome opportunities to improve wireless broadband connectivity and support the roll-out and growth of 5G services. But in light of the critical role of the C-band in the delivery of video programming to the American public, the Commission’s report and the

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<sup>1</sup> *Office of Engineering and Technology, International, and Wireless Telecommunications Bureaus Seek Comment for Report on the Feasibility of Allowing Commercial Wireless Services, Licensed or Unlicensed, to Use or Share Use of the Frequencies between 3.7-4.2 GHz*, Notice and Opportunity for Public Comment under Section 605(b) of the MOBILE NOW Act, DA 18-446 (May 1, 2018).

<sup>2</sup> See Comments of the Content Companies, GN Docket No. 17-183 at 1 & n.2 (filed Oct. 2, 2017) (hereinafter “Content Companies NOI Comments”).

upcoming rulemaking on the future of the C-band should emphasize the need to protect the integrity of existing services, such as the Content Companies', that rely on the C-band. And given the substantial record evidence in related proceedings about the likelihood of harmful interference to C-band downlinks, the Content Companies urge the Commission to find that it is not feasible to introduce new co-channel or similar forms of sharing into the spectrum reserved for video delivery.

**I. THE COMMISSION'S REPORT SHOULD EMPHASIZE THAT THE C-BAND UNIQUELY ENABLES THE DELIVERY OF POPULAR NEWS, SPORTS, AND ENTERTAINMENT PROGRAMMING TO CONSUMERS ACROSS THE COUNTRY.**

In developing its report, and in any upcoming rulemaking relating to the C-band, the Commission should recognize the critical role that C-band spectrum plays in enabling the delivery of programming by the U.S. media and entertainment industry, including the Content Companies. Simply stated, this spectrum forms the backbone of the infrastructure for delivering video content to American consumers.

In particular, the C-band spectrum is the principal pathway for the delivery of programming to each of the thousands of head-ends of multichannel video programming distributors ("MVPDs") and each of the well over 1,000 broadcast television stations affiliated with national television networks. It likewise is used to deliver content to over-the-top video distributors. Moreover, the on-site newsgathering and live event audio and video essential to producing breaking news, sports, and other programming also depends upon the C-band, using temporary fixed uplinks to transport video from the field back to studios and on to viewers.

Other parties have also provided substantial record support for the importance of the C-band in the related mid-band spectrum Notice of Inquiry ("NOI") docket. Intelsat Corporation ("Intelsat") stressed that C-band FSS services "are an indispensable backbone of the country's

communications infrastructure” and that “[a]ny proposal for expanded terrestrial use of C-band spectrum must allow these essential satellite services to continue to be provided with near-perfect reliability.”<sup>3</sup> SES Americom, Inc. (“SES”) stated that “virtually all of the video and audio programming enjoyed by U.S. consumers travels over a C-band satellite at some point in its journey to the end user.”<sup>4</sup> And Comcast Corporation (“Comcast”) highlighted “the critical role C-Band satellite transmissions play in the video distribution ecosystem.”<sup>5</sup>

Relying on the C-band, the video delivery system works today with near-100% reliability to ensure that content instantaneously reaches virtually every U.S. household without interruption. If these C-band transmissions were to fail or otherwise be impeded due to harmful interference from other services, the viewing public would lose access to the most important news, the most popular entertainment, and the most exciting live sports programs—no matter what technology the consumer uses to access video.<sup>6</sup>

In contrast, neither other spectrum bands nor terrestrial alternatives are adequate substitutes for the C-band. The Ku- and Ka-bands lack the reliability of the C-band as they are susceptible to atmospheric rain fades.<sup>7</sup> Nor can fiber substitute for C-band content delivery, as

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<sup>3</sup> Attachment to Letter from Henry Gola, Wiley Rein LLP, Counsel to Intelsat Corporation, to Marlene H. Dortch, Federal Communications Commission, Office of the Secretary, GN Docket No. 17-183 at 1 (Feb. 14, 2018) (hereinafter “Intelsat Letter”).

<sup>4</sup> Letter from Karis A. Hastings, Counsel for SES Americom, Inc., to Marlene H. Dortch, Federal Communications Commission, Office of the Secretary, GN Docket No. 17-183 (Dec. 6, 2017) (hereinafter “SES Letter”).

<sup>5</sup> Letter from Brian M. Josef, Comcast Corporation, to Marlene H. Dortch, Secretary, Federal Communications Commission, GN Docket Nos. 17-183, 18-122 (May 10, 2018).

<sup>6</sup> *See, e.g.*, Content Companies NOI Comments at 3; Opposition of the Satellite Industry Association, RM-11791, at i (Aug. 7, 2016) (referring to the use of C-band for “backbone distribution of programming content for the nation’s video delivery providers”).

<sup>7</sup> *See* Reply Comments of the Satellite Industry Association, GN Docket No. 17-183 at 20 (filed Nov. 15, 2017) (hereinafter “SIA Reply Comments”); *see also, e.g.*, Reply Comments of SES Americom, Inc., GN Docket No. 17-183 at 12–13 (filed Nov. 15, 2017) (hereinafter “SES Reply Comments”); Reply Comments of NCTA - The Internet & Television Association, GN Docket No. 17-183 at 4 (filed Nov. 15, 2017).

the country's current fiber footprint is insufficient to cover C-band's nationwide reach. As Comcast recently described to the Commission, few content providers use fiber as their primary distribution mechanism because it is inferior to C-band in terms of reliability, coverage, and cost, and would likely require costly handoffs from multiple fiber network vendors.<sup>8</sup>

It therefore is not surprising that Congress did not direct the Commission to consider whether existing uses of the C-band could be moved to other spectrum bands or services. Congress instead directed the Commission to assess whether new uses of the C-band could be accommodated solely in ways that would “ensure shared licensed or unlicensed services would not cause harmful interference to Federal or non-Federal users already operating in” the C-band.<sup>9</sup> In its report, and in its upcoming rulemaking on the C-band, the Commission accordingly should not consider policy proposals premised on flawed assumptions about the availability of alternatives to the C-band.

## **II. THE COMMISSION SHOULD RECOGNIZE IN ITS REPORT THE DANGERS OF ALLOWING CO-CHANNEL SHARING IN THE C-BAND.**

Given the substantial record evidence of the importance of the C-band for nationwide video content delivery and other critical uses, the Commission should express disapproval in its report of any new C-band uses that could limit the availability of, or cause harmful interference to, existing C-band uses. Indeed, as noted above, Congress has required the Commission to assess in its report how it can “ensure” that harmful interference does not occur to existing

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<sup>8</sup> Attachment to Comcast Letter at 8; *see also, e.g.*, SES Letter at 2 (“Fiber lacks the ubiquitous geographic reach of C-band satellites, and forced migration to fiber would therefore leave many video providers in smaller cities and rural areas without cost-effective access to programming and advanced video services.”).

<sup>9</sup> *See* Consolidated Appropriations Act, 2018, P.L. 115-141, Division P, the Repack Airwaves Yielding Better Access for Users of Modern Services (RAY BAUM’S) Act. Title VI of the RAY BAUM’S Act is the Making Opportunities for Broadband Investment and Limiting Excessive and Needless Obstacles to Wireless Act or MOBILE NOW Act.

uses.<sup>10</sup> Congress further has recognized that new co-channel or similar forms of sharing may not satisfy that bedrock standard, directing the Commission to identify frequencies suitable for sharing only “[i]f such sharing is feasible.”<sup>11</sup>

The Content Companies and other parties have detailed how the same technical characteristics that render the C-band uniquely suited for nationwide video content delivery also make it particularly susceptible to harmful interference.<sup>12</sup> As the Satellite Industry Association (“SIA”) explained in its comments on the mid-band spectrum NOI:

[E]ach of the thousands of widely-dispersed C-band receive antennas is of necessity highly sensitive. Signals from geostationary satellites located more than 22,000 miles above the earth become attenuated over that long distance and are relatively weak when they reach the ground, particularly in comparison to the typical strength of a terrestrial signal. As a result, satellite downlinks are very vulnerable to interference from terrestrial transmitters.<sup>13</sup>

While the Commission should carefully examine any potential new C-band uses and take steps to maintain the reliability and availability of C-band video content delivery, the Content Companies are especially concerned with any proposal to allow co-channel or similar forms of sharing of the spectrum used for video content delivery. Several parties have explained that co-

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<sup>10</sup> *Id.*

<sup>11</sup> *Id.*

<sup>12</sup> See Content Companies NOI Comments at 6; *see also, e.g.*, Comments of the Satellite Industry Association, GN Docket No. 17-183 at 36 (filed Oct. 2, 2017) (hereinafter “SIA Comments”); SIA Reply Comments at 29; Comments of General Communication, Inc., GN Docket No. 17-183 at 11–12 (filed Oct. 2, 2017).

<sup>13</sup> SIA Comments at 36 (quoting Reply Comments of the Fixed Wireless Communications Coalition, RM-11778 at 12 (filed Jan. 24, 2017)).

channel sharing is not feasible in the C-band without seriously jeopardizing the near-perfect reliability that is essential to video content delivery to Americans across the country.<sup>14</sup>

SIA stated in the mid-band NOI docket that “there is a broad recognition, including on the part of terrestrial interests, that co-frequency, co-coverage spectrum sharing between terrestrial systems and large numbers of C-band receive earth stations is unworkable.”<sup>15</sup> SIA’s conclusion that sharing within the C-band is infeasible relied on “both theoretical analyses and empirical evidence.”<sup>16</sup> Specifically, Report ITU-R S.2368 determined that “sharing between [advanced terrestrial mobile service] and FSS is not feasible in the same geographical area since no minimum separation distance can be guaranteed.”<sup>17</sup> Even Ericsson, which supports the use of the C-band for licensed mobile broadband, noted that its findings “indicate the need for at least 30 kilometers, under favorable conditions, of separation between a terrestrial wireless base station and a C-band earth station in order for the two services to co-exist on the same spectrum.”<sup>18</sup> And as SIA highlighted, more realistic conditions based on Ericsson’s calculations resulted in required separation distances of 50 to 70 kilometers.<sup>19</sup> Thus, even under a best-case scenario, the FCC would need to establish large exclusion zones and separation distances of at

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<sup>14</sup> It also bears mention that the introduction of new uses into the C-band will raise significant questions regarding international coordination with Canada and Mexico.

<sup>15</sup> SIA Reply Comments at 29–30 (citing Comments of T-Mobile USA, Inc., GN Docket No. 17-183 at 14 (filed Oct. 2, 2017) and Comments of Nokia, GN Docket No. 17-183 at 11 (filed Oct. 2, 2017)).

<sup>16</sup> *Id.* at 28.

<sup>17</sup> *Id.* (quoting Sharing studies between International Mobile Telecommunication-Advanced systems and geostationary satellite networks in the fixed-satellite service in the 3 400-4 200 MHz and 4 500-4 800 MHz frequency bands in the WRC study cycle leading to WRC-15, Report ITU-R S.2368-0 (06/2015), at 32, *available at* [https://www.itu.int/dms\\_pub/itu-r/opb/rep/R-REP-S.2368-2015-PDF-E.pdf](https://www.itu.int/dms_pub/itu-r/opb/rep/R-REP-S.2368-2015-PDF-E.pdf).)

<sup>18</sup> Comments of Ericsson, GN Docket No. 17-183 at 8 (filed Oct. 2, 2017).

<sup>19</sup> SIA Reply Comments at 29.

least 30 kilometers (and more than 100 kilometers in some circumstances) to prevent harmful interference to existing C-band usage.

As SES explained in the mid-band NOI docket, these large separation distances “would leave very limited areas in which new terrestrial services could deploy.”<sup>20</sup> SES produced maps showing that even under Ericsson’s best-case scenario, 30-kilometer exclusion zones “would necessitate excluding new terrestrial mobile services from almost all of the eastern half of the United States, along with the west coast and significant other populated regions of” the continental United States, and much of Alaska and Hawaii.<sup>21</sup> Calculations based on more realistic assumptions, which would require 70-kilometer exclusion zones, would preclude new terrestrial service in nearly the entire United States other than the least densely populated areas in the west and small portions of Alaska and Hawaii.<sup>22</sup> Intelsat similarly stated that “co-frequency sharing would preclude terrestrial mobile operations in a significant portion of the country.”<sup>23</sup>

Given this substantial record evidence, the Commission should conclude in its report that it is not possible to “ensure” prevention of harmful interference to existing uses (including video delivery downlinks) if new services are introduced to the C-band on a co-channel or similar basis. Similarly, the Commission’s upcoming mid-band spectrum rulemaking should not entertain proposals for co-channel or similar forms of sharing within the C-band.

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<sup>20</sup> SES Reply Comments at 20; *see also, e.g.*, GCI Reply Comments at 18 (“GCI agrees that sharing in the C-band will be ‘extremely difficult’ and based on the proposals submitted in the record thus far, it is unclear whether it will be feasible to protect incumbent FSS services from the proposed new terrestrial and mobile wireless interference.”).

<sup>21</sup> SES Reply Comments at 23.

<sup>22</sup> *Id.*

<sup>23</sup> Intelsat Letter at 1.

## CONCLUSION

The Content Companies support thorough Commission evaluation of potential new spectrum uses in accordance with the MOBILE NOW Act. But any new uses in the C-band must take appropriate account of the crucial existing usage in that band, including its use by the Content Companies to reliably deliver video programming across the United States. Most importantly, the Commission should conclude in its report that co-channel or similar forms of sharing are not compatible with the protection of existing C-band uses.

Respectfully submitted,

/s/ Matthew S. DelNero

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