

Before the
Federal Communications Commission
Washington, D.C.

In the matter of

Expanding Flexible Use in Mid-Band
Spectrum Between 3.7 and 24 GHz

GN Docket No. 17-183

**REPLY COMMENTS OF THE
COMPUTER & COMMUNICATIONS INDUSTRY ASSOCIATION (CCIA)¹**

CCIA respectfully submits these reply comments in the above-referenced proceeding.²

CCIA supports the Commission’s effort to “seek input on potential opportunities for additional flexible access—particularly for wireless services—in spectrum bands between 3.7 and 24 GHz.”³ The Commission has recently taken proactive steps to facilitate the deployment of low⁴ and high-band⁵ spectrum, so by focusing this proceeding on mid-band, the Commission will take the next proactive step to enable wireless broadband deployments. CCIA supports the Commission’s efforts through this *NOI* to find the most effective and efficient uses for mid-band spectrum. Mid-band spectrum will be crucial to 5G investment and other deployments as it provides better signal propagation and penetration than high-band while also providing greater capacity than low-band. CCIA agrees that the “combination of favorable propagation

¹ CCIA represents large, medium, and small companies in the high technology products and services sectors, including computer hardware and software, electronic commerce, telecommunications, and Internet products and services. Our members employ more than 750,000 workers and generate annual revenues in excess of \$540 billion. A list of CCIA’s members is available online at <http://www.ccianet.org/members>.

² *Expanding Flexible Use in Mid-Band Spectrum Between 3.7 and 24 GHz*, GN Docket No. 17-183, Notice of Inquiry, 32 FCC Rcd 6373 (2017) (*Mid-Band NOI*).

³ *Id.* at ¶ 1.

⁴ *The Broadcast Television Incentive Auction Closes; Reverse Auction And Forward Auction Results Announced; Final Television Band Channel Assignments Announced; Post-Auction Deadlines Announced*, Public Notice, (rel. Apr. 13, 2017), https://apps.fcc.gov/edocs_public/attachmatch/DA-17-314A1.pdf.

⁵ *Use of Spectrum Bands Above 24 GHz For Mobile Radio Services et al.*, Report and Order and Further Notice of Proposed Rulemaking, 31 FCC Rcd 8014, ¶ 18 (2016).

characteristics of the mid-band frequencies . . . and the opportunity for additional channel bandwidth . . . could make many of these mid-band frequencies well-suited for next-generation wireless services.”⁶

Chairman Pai noted how Commission action on mid-band is critical to U.S. global competitiveness: “As the world goes wireless, as consumers rely ever more heavily on their mobile devices, we need to keep up – and that means in part looking at spectrum bands ‘in the middle,’ where the FCC historically hasn’t focused.”⁷ The Commission correctly notes that there is growing “international interest in identifying new frequency bands for wireless broadband below the 24 GHz frequency range.”⁸ Many other countries and jurisdictions have already begun processes for freeing up mid-band spectrum in anticipation of 5G: Australia,⁹ China,¹⁰ the European Union,¹¹ Germany,¹² Hong Kong,¹³ India,¹⁴ Ireland,¹⁵ Japan,¹⁶

⁶ *Mid-Band NOI* at ¶ 6.

⁷ Statement of Chairman Ajit Pai, *Expanding Flexible Use in Mid-Band Spectrum Between 3.7 and 24 GHz*, GN Docket No. 17-183, https://apps.fcc.gov/edocs_public/attachmatch/FCC-17-104A2.pdf.

⁸ *Mid-Band NOI* at ¶ 4.

⁹ *Australia’s Approach to the 3.6 GHz Band*, AUSTRALIAN COMMUNICATIONS AND MEDIA AUTHORITY (Nov. 9, 2017), <http://www.acma.gov.au/theACMA/australias-approach-to-the-36-ghzband>.

¹⁰ Monica Allevan, *China Issues Plan to Use 3300-3600 MHz, 4800-5000 MHz for 5G*, FIERCEWIRELESS (June 7, 2017), <http://www.fiercewireless.com/wireless/china-issues-plan-to-use-3300-3600-mhz-4800-5000-mhz-for-5g>.

¹¹ *Strategic Roadmap Towards 5G for Europe*, EUROPEAN COMMISSION (Nov. 9, 2016), http://rspg-spectrum.eu/wp-content/uploads/2013/05/RPSG16-032-Opinion_5G.pdf; *5G for Europe: An Action Plan*, EUROPEAN COMMISSION (September 14, 2016), <https://ec.europa.eu/transparency/regdoc/rep/1/2016/EN/1-2016-588-EN-F1-1.PDF>.

¹² *5G Strategy for Germany: A scheme to promote the development of Germany to become a lead market for 5G networks and applications*, FEDERAL MINISTRY OF TRANSPORT AND DIGITAL INFRASTRUCTURE (July 2017), https://www.bmvi.de/SharedDocs/EN/publications/5g-strategy-for-germany.pdf?__blob=publicationFile; Scott Bicheno, *Germany Unveils its Cunning Plan for 5G*, TELECOMS.COM (July 13, 2017), <http://telecoms.com/483379/germany-unveils-its-cunning-plan-for-5g/>.

¹³ *Consultation Paper: Proposed Change in the Allocation of the 3.4-3.7 GHz Band from Fixed Satellite Service to Mobile Service*, OFFICE OF THE COMMUNICATIONS AUTHORITY OF HONG KONG (July 27, 2017), http://www.coms-auth.hk/filemanager/en/content_711/cp20170727_e.pdf.

¹⁴ *Consultation Paper on Auction of Spectrum in 700 MHz, 800 MHz, 900 MHz, 1800 MHz, 2100 MHz, 2300 MHz, 2500 MHz, 3300-3400 MHz and 3400-3600 MHz bands*, TELECOM REGULATORY AUTHORITY OF INDIA (Aug. 28, 2017), http://www.trai.gov.in/sites/default/files/Spectrum_CP_28082017.pdf.

¹⁵ Press Release, Commission for Communications Regulation, *Five Winning Bidders in ComReg’s 3.6 GHz Band Spectrum Award* (May 22, 2017), <https://www.comreg.ie/five-winning-bidders-comregs-3-6-ghz-band-spectrum-award/>.

Singapore,¹⁷ South Korea,¹⁸ and the United Kingdom.¹⁹ Action on this *NOI* will help promote deployment of 5G by U.S. carriers as well as other wireless broadband technologies, which will ensure that U.S. consumers and businesses have broadband at faster speeds and lower latency. It will also help U.S. equipment and chip makers compete in the global marketplace.

CCIA supports this *NOI* and the Commission’s efforts to promote the expeditious and efficient of deployment of licensed and unlicensed uses of mid-band spectrum. The Commission should promote flexible uses that will account for bands that have the best potential for speedy deployment and investment. More specifically, CCIA encourages the Commission to issue an *NPRM* that includes the pending petition for rulemaking on 12.2-12.7 GHz spectrum as well as providing for flexible use the Conventional C-Band (3.7-4.2 GHz and 5.925-6.425 GHz).

I. The Commission Should Include 12.2-12.7 GHz Spectrum in an *NPRM*.

The Commission has identified the 3.7-4.2 GHz, 5.925-6.425 GHz, and 6.425-7.125 GHz bands as candidates for mobile broadband. However, the Commission should not confine its review to just those mentioned bands.²⁰ As Commissioner O’Rielly noted in the *Spectrum Frontiers* proceeding, “the Commission needs to look even further and target additional

¹⁶ Kuniko Ogawa, Director for Land Mobile Communications Division, Ministry of Internal Affairs and Communications, *Japan’s Radio Policy to realize 5G in 2020* (June 28, 2016), https://www.gsma.com/spectrum/wp-content/uploads/2016/08/MIC_Spectrum-for-5G-MIC-Kuniko-OGAWA.pdf.

¹⁷ *Consultation Paper on 5G Mobile Services and Networks*, INFO-COMMUNICATIONS MEDIA DEVELOPMENT AUTHORITY OF SINGAPORE (May 23, 2017), <https://www.imda.gov.sg/~media/imda/files/inner/pcdg/consultations/consultation%20paper/public%20consultation%20on%205g%20mobile%20services%20and%20networks/5g-public-consultation.pdf?la=en>.

¹⁸ Jin-young, *South Korean Government to Secure 40 GHz Frequency Width for 10 Years*, BUSINESSKOREA (Dec. 23, 2016), <http://www.businesskorea.co.kr/english/news/ict/16837-strategic-securement-south-korean-government-secure-40-ghz-frequency-width-10-years>.

¹⁹ *Ofcom sets rules for mobile spectrum auction*, OFCOM (July 11, 2017), <https://www.ofcom.org.uk/about-ofcom/latest/media/media-releases/2017/ofcom-sets-rules-for-mobile-spectrum-auction>; *Improving consumer access to mobile services at 3.6 to 3.8 GHz*, OFCOM (Oct. 6, 2016), https://www.ofcom.org.uk/___data/assets/pdf_file/0035/91997/3-6-3-8ghz-consultation.pdf.

²⁰ *Mid-Band NOI* at ¶ 2 (“We ask commenters to identify other bands, allocated for exclusive non-federal use or shared federal and non-federal use, that might be suitable candidates for expanded flexible wireless broadband use so that we can understand any other interest in these mid-band frequencies and make more informed proposals to explore such bands in future proceedings, if appropriate.”).

bandwidth between 6 and 24 GHz and even in lower bands.”²¹ Last year, CCIA wrote to the Commission in support of a petition for rulemaking to permit two-way mobile broadband in the 12.2-12.7 GHz band.²² That petition is still pending as the Commission has noted.²³ CCIA urges the Commission to act on it through an *NPRM* based on this *NOI*.

The Commission should seriously consider the significant potential of the 12.2-12.7 GHz band for two-way mobile broadband. Currently, this block of spectrum is licensed for Multichannel Video Distribution and Data Service (“MVDDS”). However, this band has been underutilized due to regulatory restrictions and lack of equipment necessary to facilitate its use. The rules prohibited two-way communications, including mobile service, and, as the MVDDS 5G Coalition noted in this proceeding, “[t]he FCC last addressed the technical rules governing terrestrial use of the 12 GHz Band some fifteen years ago in 2002.”²⁴ Indeed, as the MVDDS 5G Coalition noted, “no NGSO FSS operator has used the 12 GHz Band since it was allocated for NGSO use more than fifteen years, and no operational NGSO FSS system would be impacted by elimination of this allocation”.²⁵ Deployment is currently infeasible due to strict power limits, and “MVDDS licensees must also conduct a survey of their proposed deployment area and calculate whether proposed MVDDS transmissions would exceed the established EPFD for that area, after taking into account terrain, building structure characteristics, and DBS subscriber locations.”²⁶

²¹ *In the Matter of Use of Spectrum Bands Above 24 GHz for Mobile Radio Services*, GN Docket No. 14-177, Notice of Proposed Rulemaking (Oct. 23, 2015) (Statement of Commissioner Michael O’Rielly).

²² Ex Parte Letter from John A. Howes, Jr., CCIA, RM-11768 (filed Aug. 4, 2016); Ex Parte Letter from John A. Howes, Jr., CCIA, RM-11768 (filed June 8, 2016); see *In the Matter of MVDDS 5G Coalition Petition for Rulemaking to Permit MVDDS Use of the 12.2-12.7 GHz Band for Two-Way Mobile Broadband Service* (filed April 26, 2016).

²³ *Mid-Band NOI* at note 14.

²⁴ Comments of MVDDS 5G Coalition at 2, GN Docket No. 17-183.

²⁵ *Id.* at 6.

²⁶ *Id.* at 3-4.

The 12.2-12.7 GHz band has many characteristics that would make it suitable for two-way mobile communications and help carriers meet ever-increasing demands for broadband traffic. For example, it is a large contiguous band of spectrum where “[e]ach licensee receives one spectrum block of 500 megahertz per geographic area.”²⁷ This would be ideally suited for 5G because it can facilitate high volumes of traffic in a certain area.

The Commission should ensure that 12.2-12.7 GHz spectrum is used more efficiently. By updating the rules for the 12.2-12.7 GHz band and adopting a flexible regulatory framework, the Commission could promote different use cases and the development of this band, which has been underutilized. The Commission should solicit public comment, review its current rules that are holding back technological innovation, and include the 12.2-12.7 GHz band in an NPRM based on the comments from this *NOI*.

II. The Commission Should Open the Conventional C-Band for Flexible Use.

The *NOI* teed up the 3.7-4.2 GHz band, asking how its rules “could be modified to encourage the efficient use of spectrum resources.”²⁸ The *NOI* primarily asked about “the deployment of point-to-multipoint FS broadband services”²⁹ and mobile broadband use in the band.³⁰ The 3.7-4.2 GHz band has generated great interest with extensive comments and proposals from various parts of the industry for how it could be used more efficiently.³¹ In

²⁷ *Multichannel Video Distribution and Data Service*, Fed. Comm’n Comm’n, http://wireless.fcc.gov/services/index.htm?job=service_home&id=mvdds (last visited Nov. 13, 2017).

²⁸ *Mid-Band NOI* at ¶ 21.

²⁹ *Id.* at III.A.2.

³⁰ *Id.* at III.A.3.

³¹ See Joint Comments of Intelsat License LLC and Intel Corp., GN Docket No. 17-183 (proposing a flexible, market-based approach for licensed terrestrial mobile use in the 3.7-4.2 GHz band); Comments of Intel Corp., GN Docket No. 17-183 (advocating for the Intelsat and Intel proposal); Comments of T-Mobile at Sec. III, GN Docket No. 17-183 (advocating for licensed wireless use); Comments of Google LLC and Alphabet Access at Sec.II., GN Docket No. 17-183 (advocating for shared flexible use and Fixed Broadband Access (FBA)); Comments of Microsoft at 2, GN Docket No. 17-183 (“The Commission’s NPRM should also include proposed rules to extend the CBRS to 3.8 GHz and create a new fixed wireless broadband service between 3.8-4.2 GHz to provide another tool for closing the rural broadband divide”); Comments of Verizon at 2, GN Docket No. 17-183 (“This band not only offers the possibility of large swaths of spectrum in much lower frequencies, it likely will be harmonized for next

addition to these proposals, the Commission should conduct a thorough review of how spectrum is being used in this band.³² This band has great potential, so the Commission should update its rules, provide greater certainty, and promote the most efficient and effective means of facilitating wireless broadband deployment.

Furthermore, in the uplink portion of this band (5.925–6.425 GHz), the Commission should promote unlicensed use. This band is close to the existing unlicensed 5 GHz U-NII bands, would promote the development of unlicensed technologies, and facilitate greater usage and innovation by consumers and businesses. However, the Commission should be mindful of harmful interference to existing users.

III. Conclusion.

The global race to 5G is on. Many countries and jurisdictions around the world are already updating their spectrum allocation rules so that 5G technologies can be deployed across more frequencies. In the U.S., there is a need for additional spectrum to accommodate new carrier deployments as well as other wireless broadband technologies. The Commission has made recent progress on low and high-band spectrum, so CCIA applauds its efforts to seek information on how it can find the most effective uses for mid-band spectrum. There is a great need for licensed and unlicensed mid-band spectrum so consumers and businesses can enjoy faster speeds and lower latency connections. CCIA encourages the Commission to move forward with an NPRM to explore new uses for the 3.7-4.2 GHz band and promote unlicensed use in the 5.925–6.425 GHz band. The Commission should also act on the MVDDS 5G

generation terrestrial mobile services throughout much of the world.”); Comments of Boeing at 5, GN Docket No. 17-183 (“Boeing recommends that any consideration of additional flexibility in the use of the 3.7- 4.2 GHz band (or at least its upper portion) be regulated strictly to ensure that harmful interference does not result into WAIC receivers operating in the adjacent spectrum.”); Comments of Ericsson at Sec.III., GN Docket No. 17-183 (advocating that the 3.7-4.2 GHz band “be repurposed for licensed, mobile broadband use”).

³² Comments of T-Mobile at 23-24, GN Docket No. 17-183; Comments of Google LLC and Alphabet Access at 4-7, GN Docket No. 17-183 (advocating for a review of the database of C-band FSS sites.).

Coalition's petition for rulemaking to change the onerous and outdated rules for the 12.2-12.7 GHz band and promote two-way, mobile broadband data services.

November 15, 2017

Respectfully submitted,

/s/ John A. Howes, Jr.
Policy Counsel
Computer & Communications Industry
Association (CCIA)
655 15th Street, NW Suite 410
Washington, D.C. 20005
(202) 783-0070
jhowes@ccianet.org