

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

In the Matter of)
)

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

Notice of Inquiry)

)

GN Docket No. 17-183

**COMMENTS OF
THE MID-BAND SPECTRUM COALITION**

I. Introduction and summary

A diverse range of broadband ecosystem interests, recognizing the urgent need for action on mid-band spectrum, have joined together to promote access to mid-band spectrum for both licensed and unlicensed technologies.¹ Three prominent trade associations that collectively

¹ See Ex Parte in Exploring Flexible Use in Mid-Band Spectrum Between 3.7 GHz and 24 GHz, Draft Notice of Inquiry, GN Docket No. 17-183, filed July 19, 2017 (representing the coalition at a meeting with the Wireless Bureau were representatives of a subset of participating companies and associations – AT&T, Cisco, Intel, Ericsson, Apple, Broadcom, Nokia, T-Mobile, Verizon, Wi-Fi Alliance). See also the coalition’s statement upon adoption of the NOI at <http://www.businesswire.com/news/home/20170803005751/en/Broad-Based-Coalition-Appraises-FCC-New-Mid-Band-Spectrum>

represent hundreds of member companies with vital interests in promotion of mobile broadband - **CTIA, ITI, and Wi-Fi Alliance** -- have joined with individual companies -- **Apple, Broadcom, Cisco, Comsearch, Ericsson, Hewlett-Packard Enterprise, Intel, Google and Alphabet Access, Nokia, Samsung, T-Mobile, and Verizon** -- to emphasize the critical importance of mid-band spectrum to meeting demand for terrestrial broadband service. While participating members of our coalition may file individually in this docket, in this comment we file our common views in strong support of proceeding expeditiously to a Notice of Proposed Rulemaking (NPRM) to designate additional licensed and unlicensed mid-band spectrum for flexible use.

There is a growing consensus among policymakers that mid-band spectrum² is needed to support next-generation wireless technologies, including technologies already in development by both the 3GPP³ and IEEE⁴ communities, to meet growing demand for broadband services. This is evidenced by statements from both elected and appointed officials. For example, Senator John Thune, Chairman of the Senate Commerce Committee, recently noted that “While the U.S. has pushed ahead with efforts to free new spectrum at both low and high frequencies, we lag behind other countries in so-called ‘mid-band’ spectrum.”⁵ Chairman Thune specifically urged the Commission to initiate a rulemaking to address this deficiency. The coalition also appreciates the views of the Commissioners on the need to designate flexible-use mid-band spectrum, and the important role mid-band spectrum plays due to its unique properties in supporting

² The Commission defines mid-band spectrum between the range 3.7 GHz and 24 GHz for the purposes of this proceeding.

³ See generally <http://www.3gpp.org>

⁴ See generally <http://www.ieee.org/index.html>

⁵ Letter from John Thune, Chairman Senate Committee on Commerce, Science and Transportation, to FCC Chairman Ajit V. Pai, dated June 21, 2017.

innovations for the Internet of Things, 5G, and U.S. technological leadership.⁶ Indeed,

Commissioner O’Rielly stated:

While the Commission has taken steps to provide high and low band resources, more attention needs to be paid to the mid bands. So, when presented with a viable proposal that would free spectrum for licensed *and* unlicensed purposes while protecting or accommodating incumbent licensees, the Commission should grab it with both hands and rejoice. That exact scenario presents itself in the 3.7 to 4.2 GHz and 6 GHz bands. [footnote omitted]⁷

Chairman Pai himself noted that more spectrum is a vehicle to boost investment, job creation, and U.S. global competitiveness, as well as to address broadband availability in rural areas.⁸

The coalition agrees and is pleased the Commission has initiated the process with this Notice of Inquiry.⁹ An on-the-record proceeding will allow all interested parties to provide data that will enable the Commission to evaluate the new proposed uses of these bands, and to move expeditiously to an NPRM.

⁶ See “A Mid-Band Spectrum Win in the Making”, Blog post by Commissioner Michael O’Rielly, posted July 10, 2017 at <https://www.fcc.gov/news-events/blog/2017/07/10/mid-band-spectrum-win-making>; Statement of Commissioner Mignon Clyburn on the NOI, <https://www.fcc.gov/document/fcc-opens-inquiry-new-opportunities-mid-band-spectrum-0/clyburn-statement> (“The unique properties of mid-band spectrum make it particularly attractive for deployment of next-generation wireless services. And as we continue to explore and invent innovative and expedient wireless use cases to enhance and enrich our lives, from telehealth and distance learning to smart cities and IoT, we can clearly see that mid-band spectrum is not just important, but instrumental to unleashing the promise of 5G and beyond.”)

⁷ *Id.*

⁸ Statement from FCC Chairman Ajit Pai on the NOI, <https://www.fcc.gov/document/fcc-opens-inquiry-new-opportunities-mid-band-spectrum-0/pai-statement>. See generally Letter from FCC Chairman Ajit Pai to Senate Commerce Committee Chairman John Thune, July 18, 2017 at https://apps.fcc.gov/edocs_public/attachmatch/DOC-345981A1.pdf.

⁹ Expanding Flexible Use in Mid-Band Spectrum Between 3.7 and 24 GHz, GN Docket No. 17-183, Notice of Inquiry, released August 3, 2017 (hereinafter “NOI”).

Summary of coalition comments

In the comment below, the coalition first discusses the necessity for additional mid-band spectrum, focusing on the unique role mid-band spectrum will play in delivering advanced services due to its propagation and building penetration characteristics. The comment takes note of various demand analyses showing data demand continuing to increase at a fast clip, and states that technological advancements alone will not be sufficient to meet that demand. The comment also highlights that new, more advanced radio technologies are in development that are poised to take advantage of mid-band spectrum. Next, the comment reviews the status of mid-band spectrum allocations globally, and notes the proximity of the proposed bands to existing terrestrial broadband bands.

The coalition also presents its consensus principles to govern how unlicensed use could be introduced in some portions of the mid-band spectrum, and recommends that the NPRM request detail on mitigation mechanisms and associated detailed engineering analysis to enable the Commission to conclude that unlicensed terrestrial broadband use will not cause harmful interference to incumbents.

Finally, the coalition urges the Commission to move the proceeding to the NPRM stage promptly, with technology-neutral and flexible licensing rules. Specifically, the coalition recommends that:

- (1) 3.7-4.2 GHz band be proposed for licensed terrestrial use while respecting incumbent rights in the band;
- (2) 5.925-6.425 GHz be proposed for unlicensed use, subject to the requirement for a detailed engineering analysis and mitigation proposals discussed above; and
- (3) 6.425-7.125 GHz be proposed for terrestrial broadband use, noting that coalition members have different views on whether that use should be licensed or unlicensed. To the extent unlicensed operations are proposed, the coalition also recommends that the Commission request a detailed engineering analysis and mitigation proposals for incumbent protection.

On the basis discussed above, the coalition members enthusiastically recommend expeditious adoption of an NPRM in this docket.

II. Necessity for mid-band spectrum

Coalition members fundamentally agree: mid-band spectrum is an essential component to enable support of wireless broadband innovation, and to support U.S. leadership in next-generation wireless technologies. 5G is a term often used to refer to the next generation of wireless technologies, and it requires both the licensed and unlicensed ecosystems. Both require sufficient spectrum resources for industry to achieve the potential of 5G. In this comment, 5G is meant to be interpreted in that inclusive manner, unless otherwise specified in a particular context focused on licensed or unlicensed technologies.

Advanced services enabled by these 5G innovations will require a comprehensive spectrum framework permitting scenario-specific access to low, mid and/or high frequency bands of spectrum. Mid-band spectrum availability is currently deficient in that inventory of spectrum.

As a technical matter, radio wave propagation and building penetration varies considerably across radio frequency bands, with low-band spectrum typically valued for its ability to propagate over long distances and penetrate common building materials and foliage, while high band spectrum is generally limited to shorter propagation distance and experiences greater loss through common materials. However, high band spectrum has the advantage of generally being allocated with very wide radio channel bandwidth, thus lending itself to very high throughput capabilities, while low-band spectrum generally has comparatively narrow available radio channel bandwidths. In contrast, mid-band spectrum—as the name implies—

achieves a balance between the attributes of low and high-band spectrum, with relatively long propagation distances and relatively good penetration through walls (although not quite to the degree that low band spectrum can) and the ability to support high-capacity use cases with a sufficient amount of spectrum, currently in the range of multi-gigabits of data per second. Low, mid, and high-band spectrum will all play a vital and simultaneous role in many types of advanced networks and services, but mid-band spectrum is currently underrepresented.

Significantly for industry, the aforementioned attributes for mid-band spectrum enable more cost-effective high-capacity networks to be deployed. With wireless use-cases rapidly evolving from voice communications, data, broadband, advanced broadband, and toward an explosion of smart city applications, connected transportation, supply chain, agriculture, health, etc., the unique combination of characteristics of mid-band spectrum must be part of industry's toolkit if our economy is to fully utilize wireless capabilities.

Congress and the Commission have already taken steps to make low and high band spectrum available. Pursuant to Congressional legislation, the Commission has successfully completed its first-ever voluntary incentive auction of low-band 600 MHz spectrum, opening spectrum for both licensed and unlicensed use.¹⁰ The Commission, on its own initiative, recently designated nearly 11 gigahertz of spectrum for licensed and unlicensed uses in high-band (above 24 GHz) spectrum, with plans to consider additional spectrum by year's end.¹¹ Now, the

¹⁰ See, e.g., Expanding the Economic and Innovation Opportunities of Spectrum Through Incentive Auctions, GN Docket No. 12-268, Order, released September 13, 2017 (updating the Table of Allocations to reflect the results of the auction).

¹¹ See Use of Spectrum Bands Above 24 GHz for Mobile Services, GN Docket No. 14-177, Report and Order and Further Notice of Proposed Rulemaking, released July 14, 2016, Petitions for Reconsideration pending; Remarks of FCC Chairman Ajit Pai at Mobile World Congress Americas, September 12, 2017 at http://transition.fcc.gov/Daily_Releases/Daily_Business/2017/db0912/DOC-346666A1.pdf

Commission must address mid-band spectrum as an integral part of the necessary spectrum inventory package.

In addition to phones, growth in connected devices and applications of all kinds (*e.g.*, telehealth, connected cars, smart cities and supply chain management, to name a few) requires a continued focus by regulators to supply that spectrum inventory package. Currently, the mid-band component of that inventory is under-represented. While unlicensed technologies share 570 MHz in the 5 GHz band, only 500 MHz has been channelized by the IEEE. Further, only 180 MHz is available unencumbered by advanced mitigation technologies which renders those frequencies unsuitable for certain use cases such as LTE tethering and peer-to-peer networking. At present, licensed and licensed-by-rule user interests will soon be permitted to share (subject to incumbent users) just 150 megahertz of mid-band spectrum from 3.55 to 3.7 GHz, with priority licensed interests individually restricted to a maximum of 40 megahertz of use. Simply put, these allocations and associated limitations are wholly insufficient to support the data demands that can be reasonably foreseen today.

Studies and analysis of broadband demand confirm the need for more terrestrial-use spectrum

Members of the coalition independently produce forward-looking studies of data demand, an undertaking that is particularly important as we turn the corner from the era of wireless broadband delivered to a consumer device to an era of unprecedented growth in a wide variety of use cases (for example, 5G and IoT), where wireless connectivity becomes even more important to consumers, businesses, and government. The studies show that terrestrial networks bear the brunt of growth in data communications and will continue to do so.

The Ericsson Mobility Report states that North America leads the world in LTE subscriptions today, and is projected to lead the world in 5G subscriptions in 2022.¹² For North America, mobile video is the leading driver of the growth, with the average active smartphone approaching 30 gigabytes of data per month by 2022.¹³ Short-range IoT devices—many of which will use mid-band spectrum—will represent the lion’s share of IoT devices on mobile networks – globally, more than 15 billion such devices are projected in 2022.¹⁴

This assessment is consistent with the Cisco Visual Networking Index,¹⁵ which finds that U.S. mobile data traffic continues to grow at a fast clip, four-fold from 2016 to 2021, or a compound annual growth rate of 34%.¹⁶ As a result, U.S. mobile data traffic will reach 5.6 exabytes per month in 2021, up from 1.3 exabytes per month in 2016. Meanwhile, looking at the category of “fixed Wi-Fi” (wired connections with Wi-Fi at the edge), that category of traffic already represents nearly half of all Internet traffic in the U.S. today. And finally, there’s this – in the U.S., peak Internet traffic is forecast to grow at a compound annual growth rate of 32% from 2016 to 2021, compared to 24% for average Internet traffic. And much of that peak traffic will depend upon wireless infrastructure, whether licensed or unlicensed.

This data paints a clear picture – to meet rising demand, mid-band spectrum with its unique combination of propagation and penetration characteristics will need to be an essential

¹² Ericsson Mobility Report June 2017 at page 9, <https://www.ericsson.com/assets/local/mobility-report/documents/2017/ericsson-mobility-report-june-2017.pdf>

¹³ *Id.* at page 14.

¹⁴ *Id.* at page 16.

¹⁵ <https://www.cisco.com/go/vni>

¹⁶ Without offload, mobile data traffic would grow at a CAGR of 40% instead of 35%, per Cisco. Stated differently, in the US, consumers using devices equipped with both licensed mobile and unlicensed connectivity options offloaded 64% of their data to unlicensed networks in 2016. Cisco estimates that the share of offloaded data will grow to 70% by 2021.

component of the spectrum inventory. Technological developments alone will not be enough to support the rising demand. Densified networks, among other techniques, will also be needed to meet rising demand, including peak demand, and mid-band spectrum serves that need well. The relatively modest amounts of conditionally-available mid-band spectrum in the 3.55-3.7 GHz and the 5 GHz bands cannot support foreseeable demand, and additional mid-band spectrum—both licensed and unlicensed—is necessary.

Technology and standards development are underway to support licensed and unlicensed mid-band spectrum.

Fortunately, radio technology and standards development are rapidly maturing to support next-generation networks for both unlicensed and licensed uses in the mid-band spectrum.

Robust deployment of these technologies in the mid-band range requires expanding spectrum availability.

- **3GPP/5G:** The 3rd Generation Partnership Project (3GPP) is a standards development organization covering next-generation cellular telecommunications network technologies and interworking with other networks. The introduction of 5G will be the result of improvements in LTE, LTE-Advanced and LTE-Advanced Pro and an entirely New Radio (“NR”) air interface, including the corresponding radio and core networks and interfaces. The first release of NR will be Release 15, which is targeting completion in June 2018. An early drop targeting a non-standalone NR using an LTE anchor is expected by December 2017, which will form the first Phase of 5G deployments. Full compliance with the ITU’s IMT-2020 requirements is anticipated with the completion of 3GPP Release 15. Enhancements are expected in Rel-16 at the end of 2019 - In Phase 2 of the 3GPP 5G effort. Both, NR and LTE of Rel-15 and Rel-16 will be submitted into the IMT-2020 process. The global 5G/NR standard has identified spectrum bands of operation below 6 GHz and mmW spectrum bands including the band designated by 3GPP as n77 which covers the frequencies 3300-4200 MHz. Testing and trialing is already well underway by a number of companies, globally, demonstrating communications capabilities in bands below 6 GHz and mmW bands.
- **3GPP/LAA:** Licensed Assisted Access (LAA) is an enhancement to LTE that utilizes carrier aggregation to combine licensed and unlicensed bands to meet the ever increasing data traffic demand (e.g., video streaming) from users, particularly in

densely populated buildings or hot spots. A global standard for LAA and eLAA was included in 3GPP Release-13 and Release -14 and adopted beginning March 2016. Currently 3GPP is working on feLAA (further enhanced LAA), which is planned for Release-15.

- **IEEE 802.11ax:** 802.11ax is the sixth generation of what is commonly known as “Wi-Fi” technology. Radios built to this standard will not only take advantage of wide channelization (up to 160 megahertz per channel) but will also include advanced technologies that enable densification of deployments not previously possible, and at least four times the throughput previously available.¹⁷ An initial draft of the standard is complete and now under review by the IEEE 802.11 working group. Completion of the standard is set for July 2019. Chipset manufacturers have already introduced pre-standards silicon this is compatible with the draft standard, and the first access points have just been announced. 802.11ax provides an operator-grade air interface with centralized multi-user scheduling based on orthogonal frequency division multi-access (OFDMA) and multiple-input multiple-output (MU-MIMO) technologies. For the first time, in 3GPP Release-15 Wi-Fi is being designed as a “peer radio access technology (RAT)” as a member of the so-called 5G RAT family (5GRF). Operators are expected to continue to heavily leverage Wi-Fi in combination with feLAA to aggregate mid-band spectrum to meet consumer and enterprise demand.

Spectrum regulators worldwide are addressing the importance of mid-band spectrum.

The U.S. established a leadership position in freeing mid-band spectrum through its early actions on the Citizens Broadband Radio Service rules, and actions on 5 GHz unlicensed spectrum, but other countries are now beginning to move ahead.¹⁸ Many of the world’s leading regulators are moving rapidly to open mid-band spectrum for flexible use,¹⁹ not only to meet rising demand in their jurisdictions, but also to attract investment and innovation.

- Europe has already identified 3.4-3.8 GHz as their primary band for 5G and policymakers are moving to make hundreds of megahertz of mid-band spectrum available for licensed and unlicensed. For example, they have recently opened a new work item on unlicensed use in 6 GHz.²⁰

¹⁷ http://www.ieee802.org/11/Reports/tgax_update.htm

¹⁸ See Letter from John Thune, Chairman Senate Committee on Commerce, Science and Transportation, to FCC Chairman Ajit V. Pai, dated June 21, 2017.

¹⁹ See <https://gsacom.com/5g-spectrum-bands/>

²⁰ The Radio Spectrum Committee of the European Commission declared 3.4-3.8 GHz to be the

- China issued a consultation to make an additional 500 MHz of mid-band spectrum available.²¹
- Japan is studying making an additional 1.1 GHz of mid-band spectrum available.²²
- Korea plans to auction the 3.4-3.7 GHz band in 2018/2019.²³
- Singapore issued a consultation on additional spectrum for mobile services.²⁴
- India recently issued a consultation regarding licensing 3.3-3.6 GHz.²⁵

There is also significant international movement to follow the U.S. lead by opening 5 GHz unlicensed spectrum to keep up with rising consumer, enterprise and operator demand:

- The United Kingdom recently moved to open the 5.725-5.85 GHz band for broadband fixed wireless access (BFWA) under a very lightly licensed regime²⁶
- India is studying opening 5.47-5.725 GHz for RLAN operation, and for the first time permitting outdoor operations across the 5 GHz band²⁷
- Canada harmonized technical rules for the 5.15-5.25 GHz band with the U.S. regulations for unlicensed National Information Infrastructure devices per § 15.401.²⁸

Significant harmonization exists between mid-band spectrum policies under consideration in the U.S. and internationally. The 3.7-4.2 GHz band includes, or is near to, a

primary band suitable for the introduction of 5G-based services in Europe even before 2020. Work is now ongoing in the CEPT Electronics Communications Committee (ECC) to enable European nations to convert the band for 5G use, and to de-fragment the band. The ECC has also taken action on unlicensed spectrum, adopting in March of this year a plan to study unlicensed use in the 6 GHz band, and to conclude their consideration by December 2018.

²¹ See <http://www.fiercewireless.com/wireless/china-issues-plan-to-use-3300-3600-mhz-4800-5000-mhz-for-5g>

²² See http://5gmf.jp/wp/wp-content/uploads/2017/06/02-Opening-Session-1_Isao-Sugino.pdf

²³ See <http://www.fiercewireless.com/wireless/samsung-sk-telecom-complete-3-5-ghz-5g-nr-trial>. See also <http://msip.go.kr/SYNAP/skin/doc.html?fn=a14418d72a98b1573508f6ed5fc20ce4&rs=/SYNAP/sn3hcv/result/201709/>

²⁴ See <https://www.imda.gov.sg/regulations-licensing-and-consultations/consultations/consultation%20papers/2017/public-consultation-on-5g-mobile-services-and-networks>

²⁵ See http://traf.gov.in/sites/default/files/Spectrum_CP_28082017.pdf

²⁶ https://www.ofcom.org.uk/__data/assets/pdf_file/0014/105224/Improving-access-to-5.8-GHz-spectrum-for-broadband-fixed-wireless-access.pdf

²⁷ http://www.traf.gov.in/sites/default/files/Wi-Fi_consultation%20Paper_13_july_2016.pdf

²⁸ See <https://www.ic.gc.ca/eic/site/smt-gst.nsf/eng/sf11294.html>

number of globally standardized, 5G-designated bands (3GPP bands 22, 42, 43 and 48, and likely future bands 49, n77), and the 6 GHz band is near the popular 5 GHz unlicensed bands. This proximity to, and in some cases alignment with, currently designated licensed and unlicensed broadband spectrum helps U.S. industry and the U.S. economy because it enables products that can be rapidly brought to market that leverage existing economies of scale and avoid the cost and complexity of designing for completely different bands. U.S. industry leadership on mid-band spectrum can contribute to economic benefits and jobs: there is a strong U.S. presence for the development of fixed and mobile broadband, and the U.S. should want to maintain that advantage.

III. Recommended principles for unlicensed coexistence with incumbents in the 6 GHz band.

Some of the coalition's members are incumbent licensees in the 6 GHz band, or produce equipment for that band. In addition, some coalition members are interested in enabling the full 6 GHz band for unlicensed use, while others are interested in licensed use in the 6425-7125 MHz portion. As the Commission contemplates unlicensed use in this band, the coalition believes the Commission should consider the following principles as it develops rules:

- The coalition supports no change in spectrum rights for incumbents. Stated differently, the coalition does not believe the Commission should void existing licenses or relocate licensees.
- Given the current and increasing demands for backhaul microwave links, Fixed Service will need to be able to continue to add links in the future and make other modifications to their networks.
- Unlicensed users must (by rule and practice) protect licensed incumbent users from harmful interference.²⁹ Accordingly, the NPRM should request information on a variety

²⁹ 47 CFR § 15.5

of mitigation mechanisms and associated detailed engineering analysis that will enable the Commission to conclude that the proposed unlicensed operations will not cause harmful interference into incumbent services.

IV. The Coalition urges the Commission to move forward with an NPRM

The purpose of an NOI is as a vehicle for gathering broad information and for commenters to express their interest in the various bands under consideration, in sufficient detail to support the drafting of an NPRM by Commission staff. This NOI covering the 3.7-24 GHz range is a complex inquiry, including the considerations related to thousands of incumbent links—just in the three bands specifically called out in the NOI. In light of this, the coalition concurs with Commissioner O’Rielly’s statement upon adoption of this NOI, where he stated, “I do ask that we expedite this proceeding. The consideration of the 3.7 to 4.2 and 6 GHz bands was likely ripe for a notice of proposed rulemaking rather than the notice of inquiry route, so I hope at a minimum we will push these bands forward as quickly as possible.”³⁰

The NPRM should, in addition to the principles for 3.7-4.2 GHz and 6 GHz outlined in these comments, embrace the Commission’s long standing view that rules should be developed on a technology-neutral basis, and rules should permit flexible use. These principles are particularly important now that we are entering an era when wireless technologies will be used for radically different use cases, and, as discussed above, new technologies are being developed to meet rapidly changing demand.

Because coalition members believe prompt action by the Commission is essential, we also offer our shared perspective on the bands proposed in the NOI. We remind the Commission that coalition members are leaders in providing broadband access to American consumers and

³⁰ NOI at page 19, Statement of Commissioner Michael O’Rielly.

businesses, representing diverse interests ranging from exclusive licensed use to unlicensed use.

Coalition members unanimously agree that the FCC should move forward with an NPRM as described below:

- The coalition agrees that an NPRM should be opened expeditiously to establish rules for flexible licensed terrestrial use of the 3.7-4.2 GHz band while respecting incumbent rights in the band. As discussed above, the spectrum is reasonably harmonized with global decisions, is adjacent to the 3.55-3.7 GHz shared band in the U.S., and it is reasonable to conclude that equipment could be promptly available. Coalition members may express individual views on the licensing regime or implementation of such regime for the 3.7-4.2 GHz band in their individual comments.
- The coalition agrees that an NPRM should be opened expeditiously to establish rules for unlicensed terrestrial use of the 5925-6425 MHz band while respecting incumbent rights in the band. Accordingly, the NPRM should request information on a variety of mitigation mechanisms and associated detailed engineering analysis that will enable the Commission to conclude that the proposed unlicensed operations will not cause harmful interference into incumbent services. As discussed above, the spectrum is proximate to the existing unlicensed 5 GHz band. The spectrum appears to be a strong candidate for global harmonization, and the band would be valuable to support next generation unlicensed use with wide channels and high throughput, including as part of the 5G ecosystem.
- The coalition has reached consensus that an NPRM should be opened expeditiously to establish rules for terrestrial broadband use of the 6425-7125 MHz band, as discussed above. However, some coalition members believe this band is best suited for unlicensed use, while other coalition members believe it is best suited for licensed use. To the extent that unlicensed operations are proposed, the NPRM should request information on a variety of mitigation mechanisms and associated detailed engineering analysis that will enable the Commission to conclude that the proposed operations will not cause harmful interference into incumbent services. Coalition members may express their individual views on the licensing regime for the 6425-7125 MHz band in their individual comments.

V. Conclusion

The coalition recommends that the Commission move to an NPRM in this proceeding expeditiously. Prompt Commission action will enable our members to deliver technology and services for US consumers, and to lead the world in utilizing mid-band spectrum.

Respectfully submitted,

The Mid-Band Spectrum Coalition

/s/ Dave Horne

By: Dave Horne
1155 F Street N.W.
Suite 1025
Washington, D.C. 20004

October 2, 2017

CTIA,
ITI,
Wi-Fi Alliance,
Apple,
Broadcom,
Cisco,
Comsearch,
Ericsson,
Hewlett-Packard Enterprise,
Intel,
Google and Alphabet Access,
Nokia,
Samsung,
T-Mobile USA Inc,
Verizon