

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

In the Matter of:)	
)	
International Bureau Seeks Comment on)	IB Docket No. 16-185
Recommendations Approved by World)	
Radiocommunication Conference)	
Advisory Committee)	

COMMENTS OF CTIA

Thomas C. Power
Senior Vice President and General Counsel

Scott K. Bergmann
Senior Vice President, Regulatory Affairs

Jennifer L. Oberhausen
Director, Regulatory Affairs

CTIA
1400 Sixteenth Street, NW
Suite 600
Washington, DC 20036
(202) 785-0081

October 17, 2018

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CTIA¹ respectfully submits these comments in response to the Public Notice seeking comment on the draft recommendations provided by the World Radiocommunication Conference Advisory Committee (“WAC”) on agenda items that will be considered at the 2019 World Radiocommunication Conference (“WRC-19”).²

I. INTRODUCTION AND SUMMARY.

The Federal Communications Commission (“Commission”) is a world leader in spectrum policy, often moving quickly to provide the benefits of new technologies to U.S. businesses and consumers. The Commission has taken considerable steps to make spectrum available for the next generation of wireless services, 5G. As the U.S. considers proposals in preparation for WRC-19, the overarching goal should be to ensure that its international efforts support 5G

¹ CTIA® (www.ctia.org) represents the U.S. wireless communications industry and the companies throughout the mobile ecosystem that enable Americans to lead a 21st century connected life. The association’s members include wireless carriers, device manufacturers, suppliers as well as apps and content companies. CTIA vigorously advocates at all levels of government for policies that foster continued wireless innovation and investment. The association also coordinates the industry’s voluntary best practices, hosts educational events that promote the wireless industry and co-produces the industry’s leading wireless tradeshow. CTIA was founded in 1984 and is based in Washington, D.C.

² *International Bureau Seeks Comment on Recommendations Approved by World Radiocommunication Conference Advisory Committee*, Public Notice, IB Docket No. 16-185, DA 18-1017 (rel. Oct. 3, 2018) (“Public Notice”).

deployment at home. The U.S. can achieve this goal by fostering harmonization around key 5G bands while also seeking to retain flexibility in the Radio Regulations to make its own decisions whenever possible, rather than being constrained to international consensus of interests that may not align with our own.

Critically, the Commission should continue to work to ensure the United States submits the proposal to identify 37-43.5 GHz for International Mobile Telecommunications (“IMT”) to the December CITEL PCC.II meeting.³ Among the proposals under consideration for the December CITEL meeting, the 37-43.5 GHz range has the best opportunity for harmonization of spectrum for IMT use worldwide. While the U.S. made the 37 and 39 GHz bands available for flexible terrestrial use in the Spectrum Frontiers proceeding, other countries are considering the upper part of the band for 5G. A tuning range approach will ensure that U.S. 5G bands are included in a globally harmonized range that allows the U.S. to take advantage of economies of scale and global roaming even when spectrum is not perfectly harmonized. As we near the end of the preparatory cycle, it is imperative that the U.S. is part of the discussion regarding the 37-43.5 GHz band this December.

Regarding the views advanced at the October WAC meeting, the Commission should:

- **Support identifying the 47.2-50.2 GHz range for IMT.** The U.S. is the only country so far that has made spectrum available for flexible terrestrial use in this frequency range. However, other countries are beginning to look at adjacent spectrum in order to take advantage of economies of scale. The U.S. should submit a proposal to the December CITEL meeting to globally harmonize the frequency range, which will drive economies of scale that will benefit U.S. consumers and businesses.
- **Ensure that any potential regulatory actions at WRC-19 related to Earth Stations in Motion (“ESIMs”) (AI 1.5) and High Altitude Platform Services (“HAPS”) (AI 1.14) include appropriate protections for fixed and mobile services.** To the extent the U.S. proposes regulatory actions to facilitate ESIM and HAPS, such proposals should include

³ See Comments of CTIA, IB Docket No. 16-185, at 4-8 (filed May 10, 2018).

appropriate protection levels for mobile and fixed services, as explained in more detail below. Further, the U.S. should not propose to incorporate compliance procedures into the Radio Regulations, which would set a new precedent. Compliance and coordination should instead be handled at the national and bilateral levels.

- **Ensure the U.S. position regarding a tuning range approach for ESIM is consistent with approach adopted for IMT.** Consistent with CTIA’s position on Agenda Item 1.13, we support a tuning range approach for ESIMs to facilitate economies of scale even when exact frequencies cannot be harmonized, but only to the extent the U.S. also supports a tuning range approach for IMT. The U.S. position should be consistent across services in this regard. Should the U.S. decline to support a tuning range approach for IMT on Agenda Item 1.13, it should likewise only support ESIM operations in the specific frequencies made available for ESIM operations in the United States.

The wireless industry contributes \$475 billion to the economy each year and supports 4.7 million jobs. Leading the world in 4G drove an extra \$100 billion to the U.S. economy. 5G will generate \$500 billion in economic growth and three million new jobs, with industry projected to invest \$275 billion in deploying next-generation networks. Other countries are vying to drive development of the proposals for Agenda Item 1.13 to make spectrum available for 5G. Within the Americas, other nations are also actively seeking to lead discussion that will potentially promote or limit the effectiveness of U.S. spectrum policy decisions. It is critical that the U.S. not sit on the sidelines. Consistent with Chairman Pai’s strategy to Facilitate America’s Superiority in 5G Technology (the “5G FAST Plan”), U.S. leadership should extend to ensuring that sufficient spectrum is made available at WRC-19 for globally harmonized, flexible 5G use.

II. UNITED STATES LEADERSHIP IN WIRELESS MUST EXTEND TO THE INTERNATIONAL ARENA.

A. The U.S. Wireless Industry Provides Tremendous Economic Benefits.

Wireless broadband adoption and use has increased exponentially in recent years. By the end of 2017, there were an estimated 400.2 million wireless subscriber connections in the U.S.,

an increase from 395.9 million in 2016.⁴ This growth can be attributed in part to the now 126.4 million data-only devices in use, a 19.5 percent increase over 2016 and nearly 2.5 times the number of data-only devices used in 2013.⁵ In fact, data-only devices such as connected cars and Internet of Things (“IoT”) devices accounted for 90 percent of new net wireless connection adds in the first quarter of 2018.⁶

The rapid increases in wireless connections and data-only devices have created a corresponding explosion in data usage. In 2017, U.S. mobile data traffic totaled 15.7 trillion megabytes (“MB”), an increase of 14 percent over 2016, and 40 times greater than in 2010.⁷⁸ The average smartphone user consumed 5.1 gigabytes (“GB”) of data per month in 2017, a 30.7 percent increase over 2016, and a 2,844 percent increase over 2010 usage levels.⁹ And this growth is projected to continue. By 2021, Cisco projects that mobile data traffic in the U.S. will have grown five-fold from 2016, an increase at twice the rate as U.S. fixed Internet traffic.¹⁰

U.S. leadership in developing and deploying 4G technology facilitated this growth. The United States also reaped huge economic gains from leading in 4G, including the creation of millions of new jobs. The U.S. wireless industry GDP grew from \$195.5 billion in 2011 to

⁴ *CTIA Wireless Industry Indices Report* (2018).

⁵ *Id.*

⁶ Mike Dano, *90% of Industry’s Net Adds Now Coming from Connected Cars, IoT: Chetan Sharma*, FIERCEWIRELESS (May 31, 2018), www.fiercewireless.com/iot/90-industry-s-net-adds-now-comingfrom-connected-cars-iot-chetan-sharma.

⁷ *CTIA Wireless Industry Indices Report* (2018).

⁸ *Id.*

⁹ *Id.*

¹⁰ Cisco VNI Mobile Forecast Highlights, 2016-2021, http://www.cisco.com/c/dam/assets/sol/sp/vni/forecast_highlights_mobile/index.html#~Country (last visited Sept. 10, 2018).

\$332.9 billion in 2014, when 4G reached 40 percent penetration in the U.S, with 4G leadership directly accounting for \$43.6 billion of this increase.¹¹ By 2016, the U.S. wireless industry contributed \$475 billion to the economy annually, or 2.6 percent of total U.S GDP, with leadership in 4G accounting for a nearly \$100 billion increase in annual GDP.¹² The launch of 4G in the United States also increased total wireless-related jobs by 84 percent from 2011 to 2014.¹³ The wireless industry currently supports 4.7 million American jobs, with each direct wireless job resulting in a total employment multiplier effect of 7.7x.¹⁴ Moreover, winning the 4G race helped secure America's leading position in key parts of the global wireless ecosystem, including the app economy.¹⁵

B. The United States Must Ensure That Its Actions on the International Stage Support Continued Leadership.

Given the overwhelming benefits associated with the growth of 4G, it is imperative that the U.S. continues to lead as the world transitions to 5G, both domestically and internationally. Our nation's wireless industry is expected to invest \$275 billion into building next-generation 5G networks,¹⁶ resulting in a projected three million new jobs and boosting GDP by \$500 billion.¹⁷

¹¹ *How America's Leading Position in 4G Propelled the Economy*, RECON ANALYTICS, at 9 (Apr. 16, 2018), https://api.ctia.org/wp-content/uploads/2018/04/Recon-Analytics_How-Americas-4G-LeadershipPropelled-US-Economy_2018.pdf.

¹² *Id.*

¹³ *Id.* at 10.

¹⁴ *How the Wireless Industry Powers the U.S. Economy*, ACCENTURE STRATEGY (Apr. 2018), <https://api.ctia.org/wpcontent/uploads/2018/04/Accenture-Strategy-Wireless-Industry-Powers-US-Economy-2018-POV.pdf>.

¹⁵ *How America's Leading Position in 4G Propelled the Economy*, RECON ANALYTICS, at 11-12 (Apr. 16, 2018), https://api.ctia.org/wp-content/uploads/2018/04/Recon-Analytics_How-Americas-4G-LeadershipPropelled-US-Economy_2018.pdf.

¹⁶ *CTIA Wireless Industry Indices Report* (2018).

¹⁷ *The Global Race to 5G*, CTIA, at 2 (Apr. 2018), <https://api.ctia.org/wp-content/uploads/2018/04/Raceto-5G-Report.pdf>.

The transition to 5G networks and services also will accelerate growth of IoT, as consumers and businesses adopt new applications and uses that will enable connected homes, cities, cars, and lives. For example, Ericsson estimates that cellular IoT connections will reach 213 million by 2022, accounting for more than 30 percent of all cellular connections.¹⁸ The increase in connected devices due to 5G could create as much as \$305 billion in annual health system savings,¹⁹ and the Smart City solutions facilitated by 5G could produce \$160 billion in benefits and savings through reductions in energy usage, traffic congestion, and fuel costs.²⁰

Maintaining U.S. leadership in wireless and securing the lead in the race to 5G not only will require the Commission to prioritize making spectrum available to keep pace with other countries, but also to ensure that its actions on the international stage support 5G leadership at home. Specifically, the U.S. should put forth proposals to ensure that U.S. spectrum bands are included in IMT identifications for internationally harmonized tuning ranges to ensure that U.S. consumers and businesses can benefit from economies of scale and global roaming. Proposals for other applications, such as ESIMs and HAPS, must include adequate protections for fixed and mobile services.

¹⁸ *Ericsson Mobility Report*, ERICSSON, at 33 (June 2017), <https://www.ericsson.com/assets/local/mobility-report/documents/2017/ericsson-mobility-report-june-2017-north-america.pdf>.

¹⁹ *The Digital Revolution comes to US Healthcare*, GOLDMAN SACHS (June 2015) <https://www.anderson.ucla.edu/Documents/areas/adm/acis/library/DigitalRevolutionGS.pdf>.

²⁰ *How 5G Can Help Municipalities Become Vibrant Smart Cities*, ACCENTURE STRATEGY (Jan. 2017), <https://api.ctia.org/docs/default-source/default-document-library/how-5g-can-help-municipalities-become-vibrant-smart-cities-accenture.pdf>.

III. THE COMMISSION SHOULD ADVANCE THE AGENDA ITEM 1.13 PROPOSAL TO IDENTIFY THE 47.2-50.2 GHZ RANGE FOR INTERNATIONAL MOBILE TELECOMMUNICATIONS IN ALL THREE REGIONS.

WRC-19 Agenda Item 1.13 asks the Conference to consider identifications in certain high-band frequency ranges for the terrestrial component of IMT. The WAC advanced two alternative views on this agenda item for 47.2-50.2 GHz at the recent October 1, 2018 meeting. View A suggests that IMT could be identified in parts of the 47.2-48.2 GHz range under certain conditions, and proposes no change in the 48.2-50.2 GHz range (*i.e.*, no IMT). View B proposes an identification to the terrestrial component of IMT for the 47.2-50.2 GHz range in all three regions. The U.S. should support the View B proposal to identify the full 47.2-50.2 GHz range for IMT in all three regions given the potential benefits to U.S. consumers and businesses for increased economies of scale, the existing co-primary allocation to the Mobile Service, the existing regulatory status of the spectrum in the Radio Regulations, and the favorable results of the sharing studies conducted under Agenda Item 1.13.

A. The View B Proposal to Harmonize the 47.2-50.2 GHz Tuning Range for IMT Will Benefit American Consumers by Facilitating Global Roaming and Economies of Scale.

The United States should support a tuning range approach for the 47.2-50.2 GHz range to allow consumers the opportunity to benefit from international economies of scale and global roaming. Adoption of “radio tuning ranges” provides the benefits of international harmonization, even when different countries use different segments of a frequency range for IMT. The radio tuning range approach will be important for success at WRC-19, as it allows different countries and regions to make different portions of spectrum available within that range depending on national circumstances. In November 2017, the Commission made the 47.2-48.2 GHz band available for flexible terrestrial use, and Chairman Pai announced in 2018 that the

band will be auctioned next year. While the United States was the first country to make spectrum available in the frequency range, following the Commission's actions, other countries have expressed an interest in opening up adjacent spectrum in the 47.2-50.2 GHz range for IMT in their own countries to leverage economies of scale.

Any decision regarding particular uses in the band should be a national decision, given the results of extensive sharing and compatibility studies regarding the Fixed Satellite Service and IMT in the band carried out under International Telecommunication Union ("ITU") Radiocommunication Sector ("ITU-R") Task Group 5/1. These studies demonstrated that sharing is feasible with large interference margins.²¹ The results for aggregate emissions from IMT into geostationary orbit ("GSO") Fixed Satellite Service ("FSS") space stations found the calculated interference-to-noise ratio (" I/N ") ranged from -37 to -30 dB.²² Even a study assuming worst case values for each IMT transmitter and without considering clutter loss found an I/N of -19 dB.²³ For the non-GSO case, results ranged from I/N of -21.7 dB to -37 dB.²⁴ Based on these results, individual countries should retain the flexibility to decide what service to authorize in these bands. The U.S. made decisions about what bands to authorize for flexible terrestrial use based on its own priorities, incumbencies, and national priorities, and other countries should have that same opportunity. The tuning range approach provides that

²¹ Sharing and Compatibility Studies of IMT Systems in the 47.2-50.2 GHz Frequency Range, Annex 9 to Task Group 5/1 Chairman's Report, ITU-R Document 5-1/478E, at 212-13 (Sept. 27, 2018).

²² *Id.*

²³ *Id.*

²⁴ *Id.*

flexibility, rather than precluding IMT from certain bands in other countries that may have different national circumstances and priorities.

B. Precluding IMT in the 48.2-50.2 GHz Range, as Proposed in View A, Is Inconsistent with the Radio Regulations.

The View A proposal argues for no change in the Radio Regulations in the 48.2-50.2 GHz band in any region, based on identification in the band for high-density applications in the Fixed Satellite Service (“HDFSS”). However, precluding IMT from the band in all three regions does not make sense, as HDFSS is not identified in all portions of that band in all three regions. Regions 1 and 2 both have HDFSS identifications within the 47.2-50.2 GHz band; however, the regions use different portions of the spectrum within the range.²⁵ Further, there is no HDFSS identification in the 47.2-50.2 GHz range in Region 3. The View A proposal suggests that IMT should be precluded from the 48.2-50.2 GHz range to facilitate HDFSS use even in frequencies without HDFSS identifications in particular regions, and should be rejected for that reason.

Further, No. **5.516B** in the Radio Regulations makes clear that even in frequencies with an HDFSS identification, that identification “does not preclude the use of the bands by other services to which they are allocated on a co-primary basis and does not establish priority in the Radio Regulations.”²⁶ The 47.2-50.2 GHz band is currently allocated to the Fixed, Mobile, and FSS services on a co-primary basis, and any HDFSS identification therefore should not preclude the use of the band by IMT.

²⁵ Under No. 5.516B, HDFSS identifications in the band are as follows: 47.5-47.9 GHz (space-to-Earth) in Region 1, 48.2-48.54 GHz (space-to-Earth) in Region 1, 49.44-50.2 GHz (space-to-Earth) in Region 1, and 48.2-50.2 GHz (Earth-to-space) in Region 2.

²⁶ No. 5.516B.

C. The Commission Should Not Support Unnecessary Restrictions on IMT Operations.

In addition to unduly limiting access to spectrum for IMT, the View A proposal seeks to mandate restrictions on IMT-2020 operational characteristics in the Radio Regulations through a Resolution. The Commission should reject these proposed limitations, which would be unnecessarily restrictive.

As explained above, ITU-R studies were performed against the satellite characteristics that would be most difficult to protect, and the results show a large interference margin. Nonetheless, View A proposes a Resolution that would mandate restrictions on IMT-2020 operational characteristics such as antenna pattern, antenna downtilt, and power constraints into the Radio Regulations. A one-size-fits-all approach – like that proposed in View A – is unworkable in our diverse, global ecosystem, and it does not make sense to memorialize prescriptive operating procedures in the Radio Regulations, which can only be amended at World Radiocommunication Conferences. This is especially true in an era of rapidly evolving spectrum sharing technologies. The Commission should reject the View A proposal to include a Resolution mandating operational characteristics for IMT in the band, which would put the U.S. Upper Microwave Flexible Use Service (“UMFUS”) rules in derogation of the Radio Regulations, and instead should seek to retain flexibility in the Radio Regulations regarding technical parameters for IMT. Further, the Commission should reject the View A proposal to invite the ITU to develop a Recommendation to ensure protection of existing and future FSS earth stations in 47.2-48.2 GHz from IMT in neighboring countries and to limit IMT to the land mobile service.

Finally, no changes to Resolution 750, which covers protection of Earth Exploration-Satellite Service (“EESS”) passive services, are necessary regarding an IMT identification in the

47.2-50.2 GHz band. The Radio Regulations make clear in No. **5.340.1** that, “The allocation to the Earth exploration-satellite service (passive) and the space research service (passive) in the band 50.2-50.4 GHz should not impose undue constraints on the use of the adjacent bands by the primary allocated services in those bands.”²⁷ Therefore, the United States should not support changes to the Resolution that would inhibit the use of IMT under the existing co-primary fixed or mobile allocations in the adjacent 47.2-50.2 GHz band.

IV. ANY CHANGES TO FACILITATE HAPS AND ESIM OPERATIONS MUST ENSURE PROTECTION OF FIXED AND MOBILE SERVICES.

A. Any Increased Access to Spectrum for HAPS Must Ensure Protection of Mobile and Fixed Services.

Any proposal for regulatory action to facilitate HAPS under Agenda Item 1.14 should ensure the appropriate protection of mobile broadband services using the technical conditions provided by the expert groups for the services that would share with HAPS. Specifically, View B provides the appropriate power flux density (“pfd”) values based upon system characteristics, including antenna pattern, from Working Party 5A and Working Party 5D.²⁸

The Commission should decline to advance a proposal including the technical conditions HAPS proponents have set forth, for a variety of reasons. The proposed technical characteristics for the six different HAPS systems have been a moving target throughout the Working Party process. For example, in the characteristics proposed at the 18th Working Party 5C Meeting in January 2017, only one system proposed deployment in urban areas, and that system proposed

²⁷ No. 5.340.1.

²⁸ Provision of the appropriate protection in the View B proposal should not be taken as an endorsement of equal status for HAPS with mobile and non-HAPS fixed systems, but simply to provide regulatory options in the event the U.S. decides to submit a proposal for HAPS use in any of the bands under study.

only one customer premise equipment (“CPE”) per beam, only 16 CPE beams, and two gateway beams.²⁹ At the subsequent WP5C Meeting in November 2017, four systems proposed deployments in urban areas, with one system proposing 1,600 CPEs per beam and 100 CPE beams in all deployment environments, which would include urban areas.³⁰ The characteristics changed yet again for the most recent WP5C Meeting in May 2018, with one system proposing 189 CPEs per beam and 67 CPE beams in all deployment scenarios.³¹ Even with this significant downward adjustment from 160,000 CPEs proposed in November 2017 to 12,663 CPEs proposed in May 2018, information remains unavailable regarding what sharing with this system would entail.

Further, compatibility studies continue in the Working Party process.³² To date, the studies have focused on aggregate interference from the two systems with 16 and 32 CPEs. However, the studies have not considered any of the other four systems, including the system proposing 12,663 CPEs including in urban areas. If the Commission decides to move forward

²⁹ Working Document Towards Preliminary Draft New Recommendation ITU-R F Broadband HAPS Characteristics, Annex 14 to Working Party 5C Chairman’s Report, ITU-R Document 5C/292-E (Jun. 1, 2017).

³⁰ Working Document Towards Preliminary Draft New Recommendation ITU-R F Broadband HAPS Characteristics, Annex 14 to Working Party 5C Chairman’s Report, ITU-R Document 5C/410-E (Nov. 24, 2017).

³¹ Preliminary Draft New Recommendation/Report ITU-R F. Broadband HAPS Characteristics, Annex 14 to Working Party 5C Chairman’s Report, ITU-R Document 5C/531-E (Jun. 5, 2018).

³² The Commission should note that Elefante Group found that sharing with IMT is not feasible. When Elefante and Lockheed Martin studied sharing between IMT and Elefante’s proposed stratospheric system, they found that sharing is not feasible in the 26 GHz band. While some parties contend that Elefante’s proposed operations do not meet the HAPS characteristics and that their statement is not relevant to any HAPS proposal, Lockheed Martin seeks HAPS identifications in View C for the proposed stratospheric operations. The Commission should note the tension between these positions.

with a HAPS proposal in any specific band, the appropriate pfd mask is set forth in the View B proposal.

B. Any ESIM Proposal Should Provide Adequate Protection for All Relevant Systems.

Similarly, if the Commission decides to propose ESIM operations, any proposal should ensure all relevant mobile broadband systems provided by the expert group are protected. As confirmed by Conference Preparatory Meeting (“CPM”) text:

[T]he ITU-R examined sharing conditions between ESIM and terrestrial services in the 27.5-29.5 GHz band and concluded that there would be potential interference to receiving stations of terrestrial services from ESIM transmitters. Therefore, aeronautical and maritime ESIM should operate under the specified technical, operational and regulatory conditions to avoid causing unacceptable interference to receiving stations of terrestrial services operating in accordance with the Radio Regulations.

For aeronautical ESIMs, the View A proposal only considers one of the two systems operating in the 28 GHz band provided by the expert group on mobile broadband, Working Party 5A, while not taking the second system into account at all. Disregarding protection for specific systems in other services would set a new, negative precedent at the ITU. The Commission should reject this approach. The Commission instead should advance a composite pfd mask for aeronautical ESIMs that utilizes the appropriate formula provided by WP5A and the technical characteristics for both mobile broadband systems WP5A provided. Further, the Commission should not advance a proposal that includes a note regarding the aeronautical ESIM pfd mask that would take into account attenuation from the aircraft fuselage. There is no information about what amount of attenuation should be considered, whether through the aircraft window, aircraft body, etc., and the only reference is a single diagram in an ITU-R Report.

Studies also show interference to and from land ESIMs, which can travel across international borders. Consistent with Resolutions 156 and 158, any land ESIM operation should not interfere with or claim protection from interference from fixed and mobile operations.

C. The Commission Should Decline to Include Interference Compliance Procedures in Any HAPS or ESIM Proposal.

Interference compliance and coordination procedures should be handled at the national and bilateral levels, and should not be included in the Radio Regulations via a Resolution in any HAPS or ESIM proposal the Commission may advance. Including compliance procedures in a Resolution would set an inappropriate new precedent, and should be avoided. Pfd values for terrestrial services are specified in many instances in the Radio Regulations, without specifying compliance or coordination procedures. Such procedures are appropriately handled at the national and bilateral levels.

D. Any HAPS Proposal Should Be Consistent with Resolution 160, the Resolution to Study and Consider Modifications or Additions to Existing HAPS Identifications.

Resolution 160 was adopted at WRC-15 and sets forth the parameters for studying and considering modifications to existing HAPS identifications. The Resolution makes clear that the ITU must first consider expanding existing identifications to a regional or global level. Then, the ITU is invited to consider whether identifications in other specific bands are necessary, but only to the extent that HAPS spectrum needs cannot be met through the existing identifications, including any regional or global expansion. The View B proposal is drafted to be consistent with Res. 160, while the View A and C proposals are not.

Specifically, Resolution 160 invited the ITU to study:

- “the suitability of using the existing identifications ... on a global or regional level, taking into account the regulatory provisions, such as geographical and technical restrictions associated with existing HAPS identifications ...”

- “appropriate modifications to the existing footnotes and associated resolutions in the identifications in recognizing c) in order to facilitate the use of HAPS links on a global or regional level, limited to the currently identified frequency bands and, where the use of an identification is not technically feasible for HAPS use, the possible removal of the unsuitable identification;”
- “in order to meet any spectrum needs which could not be satisfied under resolves to invite ITU R 2 and 3, for the use of gateway and fixed terminal links for HAPS, the following frequency bands already allocated to the fixed service on a primary basis, not subject to Appendices 30, 30A, and 30B in any region: on a global level: 38-39.5 GHz, and on a regional level: in Region 2, 21.4-22 GHz and 24.25-27.5 GHz.”³³

ITU studies considering HAPS spectrum needs found that the minimum amount of spectrum needed is 720 megahertz. The existing HAPS footnotes identify a total of 1360 megahertz, which is nearly twice the minimum amount needed according to the relevant studies. The Commission should take into account consistency with Resolution 160 in considering any HAPS proposals. This consistency should extend to ensuring that that any bands proposed for HAPS use already contain an allocation to the fixed service on a primary basis.³⁴

V. CTIA SUPPORTS ADOPTION OF A TUNING RANGE APPROACH REGARDING ESIM IDENTIFICATIONS TO THE EXTENT IT IS CONSISTENT WITH A TUNING RANGE APPROACH FOR IMT UNDER AGENDA ITEM 1.13.

CTIA supports a tuning range approach for ESIMs, consistent with our position on IMT identifications under Agenda Item 1.13. However, the United States should only propose a tuning range approach for Agenda Item 1.5 if it adopts a consistent approach for Agenda Item 1.13. If the U.S. does not support a tuning range approach on Agenda Item 1.13 (*e.g.*, 37-43.5

³³ Resolution 160.

³⁴ *Id.*

GHz and 47.2-50.2 GHz), then the U.S. should likewise limit any ESIM proposal to the exact frequencies authorized for ESIM use domestically (*e.g.*, 28.35-28.6 GHz and 29.25-29.5 GHz).³⁵

VI. CONCLUSION.

CTIA urges the Commission to advance proposals to harmonize the 47.2-50.2 GHz tuning range on a global basis and to ensure that any HAPS or ESIM proposals include adequate protections for the fixed and mobile services. Additionally, the Commission should work to ensure that the proposal to identify the 37.4-43.5 GHz band for IMT on a global basis is submitted to the upcoming CITEL meeting in December. These actions are consistent with the overarching goal of maintaining flexibility in the Radio Regulations as well as the Commission's focus on leading the world in 5G, and are critical to ensuring the U.S. continues to lead in international spectrum policy.

Respectfully Submitted,

/s/ Jennifer L. Oberhausen

Jennifer L. Oberhausen
Director, Regulatory Affairs

Thomas C. Power
Senior Vice President and General Counsel

Scott K. Bergmann
Senior Vice President, Regulatory Affairs

CTIA
1400 Sixteenth Street, NW
Suite 600
Washington, DC 20036
(202) 785-0081

Dated: October 17, 2018

³⁵ See *Amendment of Parts 2 and 25 of the Commission's Rules to Facilitate the Use of Earth Stations in Motion Communicating with Geostationary Orbit Space Stations in Frequency Bands Allocated to the Fixed Satellite Service*, Report and Order and Further Notice of Proposed Rulemaking, IB Docket No. 17-95, FCC 18-138 (rel. Sept. 27, 2018).