



AFTER ACTION REPORT: U.S. – THAILAND 6 GHz SPECTRUM BAND WORKSHOP February 17th – 18th, 2022

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EXECUTIVE SUMMARY

On February 17 – 18 2022, the American National Standards Institute (ANSI), through the United States Trade and Development Agency (USTDA) funded U.S.-Indo-Pacific Standards and Technology Cooperation Program (STCP), coordinated the U.S.–Thailand 6 GHz Spectrum Band Workshop. The virtual workshop took place online via Zoom. Highlights from the workshop are as follows:

- USTDA and ANSI co-hosted the workshop with three major Thai government offices: the Ministry of Digital Economy and Society (MDES), Office of the National Digital Economy and Society Commission (ONDE), and the Office of The National Broadcasting and Telecommunications Commission (NBTC). The Thai partners significantly contributed to the success of the workshop by closely collaborating with all stakeholders throughout the planning phase.
- Five U.S. firms and five government agencies/departments presented and took part in the panels over the two days.
- 154 participants joined the virtual sessions; 64 of which were from Thailand and 38 from the U.S. The remaining 52 participants joined from around the ASEAN region.
- The workshop materials and recordings will be used to inform incoming members of the three Thai co-hosts' offices on the various issues and solutions in the 6 GHz spectrum sphere.
- **83%** of surveyed respondents indicated that they felt the workshop met their objectives.
- **83%** of surveyed respondents felt that the workshop will have a positive impact on the development of next-generation devices.
- **83%** of surveyed respondents indicated that the workshop helped promote the adoption of international best practices and standards of the 6 GHz spectrum band allocation.

This Public Report includes the following elements: (i) Executive Summary, (ii) Final Agenda, (iii) Detailed Workshop Summary, including technical analysis and links to workshop video recordings, photos and presentations, and (iv) Participant and Stakeholder Feedback.

FINAL AGENDA



February 17-18, 2022 | 8:00-10:30AM (ICT) | 8:00-10:30PM (EST) | Zoom

Day 1

7:45 – 8:00	Registration/ Signing On
8:00 – 8:20	<p>Welcome and Opening Remarks</p> <ul style="list-style-type: none"> Ms. Verinda Fike, Regional Director for the Indo-Pacific, USTDA (<i>confirmed</i>) Mr. Michael Heath, Chargé d’Affaires, U.S. Embassy Thailand (<i>confirmed</i>) Mr. Trairat Viriyasirikul, Acting Secretary General, NBTC (<i>confirmed</i>) Mr. Chaiwut Thanakamanusorn, Minister, MDES (<i>confirmed</i>)
8:20 – 8:55	<p>Session 1: Stage-setting – License-Exempt Technologies for the Next-Generation Wireless Ecosystem</p> <ul style="list-style-type: none"> Benefits/challenges of particular technologies/regulations Social and economic advantages Importance of harmonization on international standards, 6 GHz spectrum band, and other key areas <p>Q&A</p> <p>Speaker: Ms. Mary Brown, Director Government Affairs, Cisco Systems (<i>confirmed</i>)</p>
8:55 – 10:25	<p>Session 2: Technical and Regulatory Session/Training on Best Practices</p> <ul style="list-style-type: none"> U.S. regulatory approach Technical standards or policy initiatives Policy/Regulatory solutions- managing incumbents, interference issues, spectrum sharing <p>Q&A (~20 min) – Thai co-facilitator: Mr. Worapat Patram, Intel</p>

	<p>Moderator: Mr. Cary Ingram, Senior International Trade Specialist Telecommunications Technologies, Industry & Analysis, Department of Commerce International Trade Administration (confirmed)</p> <p>Speakers: Mr. Tom Sullivan, Chief of the International Bureau, Federal Communications Commission (FCC) (confirmed)</p> <p>Mr. Saneh Saiwong, Principal Engineering Expert, NBTC (confirmed)</p>
10:25 – 10:30	<p>Closing Remarks/End of Day 1</p> <ul style="list-style-type: none"> Ms. Leslie McDermott, Senior Director, International Development, American National Standards Institute (ANSI) (confirmed)

Day 2

7:45 – 8:00	Registration/ Signing On
8:00 – 8:10	<p>Welcome/Recap of Day 1</p> <ul style="list-style-type: none"> Mr. Brandon Megorden, Regional Manager for Asia, USTDA (confirmed) Ms. Ajarin Pattanapanchai, Permanent Secretary, MDES (confirmed)
8:10 – 8:55	<p>Session 3: Addressing a Fast-Changing Technology Ecosystem: New Opportunities, Challenges, and Regulatory Environment – PANEL DISCUSSION</p> <ul style="list-style-type: none"> New technologies, challenges for implementation (technological or policy/regulatory) Comparing spectrum allocation options: pros/cons Benefits from a local perspective <p>Q&A and Discussion - Thai co-facilitator: Mr. Worapat Patram, Intel</p> <p>Moderator: Ms. Leslie McDermott, Senior Director, International Development, American National Standards Institute (ANSI) (confirmed)</p> <p>Speakers: Dr. Martha Suarez, President, Dynamic Spectrum Alliance (confirmed)</p> <p>Mr. Ron Repasi, Acting Chief of the Office of Engineering Technology, Federal Communications Commission (FCC) (confirmed)</p> <p>Mr. HA Junhong, Director of the Spectrum Policy Division, Radio Policy Bureau, Korea Ministry of Science and ICT (confirmed)</p>
8:55 – 9:55	<p>Session 4: Use Cases/Investment Opportunities – Presentation and PANEL DISCUSSION</p> <ul style="list-style-type: none"> Present case studies from implementation Present U.S. vertical use cases for enterprise and consumer Present investment outlook for different regulatory paths

	<p>Q&A and Discussion- Thai co-facilitator: Mr. Worapat Patram, Intel</p> <p>Moderator: Mr. John Breidenstine, ASEAN Regional Senior Commercial Officer, U.S. Commercial Service Bangkok (confirmed)</p> <p>Speakers: Dr. Hassan Yaghoobi, Director of Wireless Standards, Intel (confirmed)</p> <p>Mr. Christopher Szymanski, Director, Product Marketing Technology Strategy, Broadcom (confirmed)</p> <p>Mark Krischer, Principal Wireless Architect, Cisco Systems (confirmed)</p> <p>Rolf de Vegt, Vice President, Technical Standards, Qualcomm (confirmed)</p> <p>Renuka Rajaratnam, Public Policy Manager, Meta Platforms (confirmed)</p>
<p>9:55 – 10:25</p>	<p>Session 5: Summary Panel – Next Steps and Recommendations</p> <ul style="list-style-type: none"> • Key points raised during previous sessions • Recommendations for Thai decision makers • Considerations for regional harmonization <p>Moderator: Mr. Noah Geesaman, Deputy Economic Counselor at the U.S. Embassy – Bangkok (confirmed)</p> <p>Speakers: Mr. Alan Norman, Public Policy Director, Meta Platforms (confirmed)</p> <p>Mr. Tom Sullivan, Chief of the International Bureau, Federal Communications Commission (FCC) (confirmed)</p> <p>Mr. Cary Ingram, Senior International Trade Specialist Telecommunications Technologies, Industry & Analysis, Department of Commerce International Trade Administration (confirmed)</p>
<p>10:25 – 10:30</p>	<p>Closing Remarks/ Wrap-up</p> <ul style="list-style-type: none"> • Mr. Putchapong Nodthaisong, Secretary-General, ONDE (confirmed) • Mr. Brandon Megorden, Regional Manager for Asia, USTDA (confirmed)

DETAILED WORKSHOP SUMMARY

Background

As the third workshop held under the U.S.-Indo-Pacific STCP, the U.S.-Thailand 6 GHz Spectrum Band Workshop aimed to promote international harmonization in the ASEAN region, especially in Thailand, on the allocation of the entire 1200 MHz of the 6 GHz spectrum band (5.925-7.125 GHz) for use by license-exempt/unlicensed wireless technologies such as Wi-Fi. Countries in the ASEAN region have not yet made final decisions on how to allocate the 6 GHz spectrum band between license-exempt technologies or licensed mobile wireless technologies. Countries are determining whether to segment the band between license-exempt and licensed mobile wireless technology, reserve the entire band for licensed mobile wireless technology, or allocate the entire band for license-exempt wireless technologies.

Focusing on license-exempt radio local area network (RLAN) technologies such as Wi-Fi and 5G NR-U (New Radio-Unlicensed), this two-day virtual workshop provided a valuable platform for the U.S. industry and government regulators to communicate with their Thai counterparts and other key decision-makers, promote and advocate for allocating the entire 6 GHz band for license-exempt use, demonstrate the social and economic advantage of the full allocation, provide technical advice and share best practices for implementing the policy.

Wi-Fi technologies play an important role in the global digital economy. Wi-Fi connectivity will add over \$4.9 trillion in global productivity. Wi-Fi supports almost 30 billion connected devices globally, and will be the connection point for over 70 percent of mobile data traffic by 2023. Additional spectrum capacity is needed for Wi-Fi to continue being a key technology enabler for next-generation connectivity and applications, such as the Internet of Things (IoT), advanced manufacturing, AR/VR technology, telemedicine, and broadband access for underserved communities. In 2020, countries in the ASEAN region spent over USD 110 billion on information and communications technology (ICT) goods and services, and that spending is expected to grow more than 6 percent over the next four years. With the expanded spectrum capacity enabling more use cases and vertical applications over Wi-Fi networks, more business opportunities will be created for U.S. technology suppliers and application developers.

Advancing international harmonization on allocating the entire 6 GHz band for license-exempt technologies is aligned with the USTDA's objectives to increase U.S. exports, expand market opportunities for U.S. companies, and strengthen U.S. competitiveness in the global ICT market. U.S. companies are the leading technology developers and manufacturers of the chipsets, equipment, and applications that enable Wi-Fi connectivity, are highly active in standards-setting forums for Wi-Fi technology, and hold the largest position in Wi-Fi Intellectual Property (IP). Many large U.S. companies will benefit from the policy decision. Also, small-to-medium-sized enterprises (SMEs) that develop the components, consumer products, and applications will also realize increased business opportunities from the policy decision.

Summary of Workshop Topics

The target audience of this workshop included government officials and industry representatives from Thailand and other countries in the Indo-Pacific region, including Vietnam, Malaysia, Philippines, Australia, Indonesia, Lao PDR, and Singapore. U.S. government and private sector experts shared insights on the regulatory and technical considerations, social and economic benefits, and the global impact of adopting license-exempt allocation of the 6 GHz band to empower future technology advancement. Thai government officials also discussed their efforts, plans, and concerns for decision-making and policy development. The two-day workshop, consisting of 2.5-hour sessions each day, covered various topics as described in the below highlights.

Key Highlights

- Thai government officials, including Mr. Chaiwut Thanakamanusorn, Minister of MDES, Ms. Ajarin Pattanapanchai, Permanent Secretary of MDES; Mr. Trairat Viriyasirikul, Acting Secretary-General of NBTC; and Mr. Puchapong Nodthaisong, Secretary-General of ONDE, attended the workshop and delivered opening or closing remarks in which they discussed their appreciation for the collaboration of public and private sectors in the U.S. and Thailand, and acknowledgment that opening up 6 GHz spectrum for wide use will bring significant benefits and opportunities for technology development.
- The workshop panelists advocated for the allocation of the 6 GHz spectrum band for license-exempt/unlicensed by taking a multi-faceted approach, incorporating perspectives from varied stakeholders including regulators, standard developers, network service providers, multinational corporations with cutting-edge technologies, end-user/consumers, and more.
- Regulators from the U.S. and South Korea addressed their recent experience and the critical nature of making all 1,200 MHz of the spectrum in the 5.925 – 7.125 GHz (6 GHz) band available for unlicensed use by wireless devices, which can accelerate the development of new technologies such as AR/VR, Internet of Things, telemedicine, and more, as well as enhance the overall competitiveness of a country.
- Providing an overview of their core business offerings, representatives from U.S. industries introduced potential investment and market opportunities of next-generation Wi-Fi, empowered by the 6 GHz spectrum, in different application scenarios, such as in enterprise and consumer uses, both indoor and outdoor, and in both urban vs. rural environments. They also reiterated the importance of harmonization to the U.S. and international consensus-based standards and the benefits from compatibility of services across borders.
- The speakers concluded that the opportunity cost in delaying the development and implementation of 6 GHz band-related policies is substantial. The speakers argued that a delay of one year in decision-making can put a country behind in building the infrastructure landscape necessary for innovation by at least three years, which will result in even longer delays in follow-up efforts. As such, they posit that the Thai government and other regulators in the region must take action as quickly as possible, while keeping their domestic conditions in consideration.

Session 1

Stage-Setting – License-Exempt Technologies for the Next-Generation Wireless Ecosystem

A speaker from Cisco Systems set the stage for the workshop with a presentation that elaborated on the role of license-exempt technologies and the 6 GHz spectrum in relation to existing Wi-Fi and 5G environments. According to her, a digital plan of a country usually answers “what (what does our economy and our nation look like when the plan is fully implemented)” and “when (by when do we want to see the proposed changes in our economy)”, but tends to lack answers for “how (how do we make the right decisions to achieve our objectives)”. According to ITU statistics in 2021, bandwidth consumption continued to grow at a relentless pace with slightly more than 50% of that data beginning or ending on Wi-Fi networks, which means that technology must stay ahead of the curve. In the latest technology development of Wi-Fi 6E, there are increased bandwidth, decreased latency, more device diversity, new use cases and security capabilities, and energy efficiency functionality. Wi-Fi security is also adapting to

new demands, with WPA3 as the standard for Wi-Fi 6E and beyond. As the first technology in the 6 GHz band, Wi-Fi 6E is a fundamental change for a new era.

With the current world still mostly operating in 4G, 5G coverage is not ubiquitous and it is not a complete solution to reach the final group of consumers with network access. The industry believes that Wi-Fi 6E and 5G have a complementary role in meeting countries' digital goals for the following reasons:

- Mobile devices are still mostly relying on Wi-Fi offload;
- A mobile device supports individuals but not households;
- 5G fixed wireless access relies on Wi-Fi for indoor connectivity to devices;
- Global consumer electronics industry remains committed to Wi-Fi;
- Wi-Fi is the predominant enterprise wireless technology for many networking needs;
- Wi-Fi is at the edge of every broadband connection, and is sometimes itself "the last mile".

She also raised some key questions for countries to evaluate the urgency of decision making to adopt a 6 GHz spectrum:

- What mix of digital technologies will you need to achieve your country's goals?
- How is any given decision going to ensure that those technologies and their capabilities will be fully available to your consumers and your economy?
- For spectrum technologies, do you have a path forward to enable future generational changes for all the technologies you will need in the time frame you need it?

The presentation concluded with the suggestion by the license-exempt industry that the newest technology, Wi-Fi 6E operating in the full 6 GHz band, should be an important part of a country's digital future.

Session 2

Technical and Regulatory Session/Training on Best Practices

This session was moderated by the International Trade Administration (ITA), with speakers from the International Bureau at the Federal Communications Commission (FCC), who provided an overview of the U.S regulatory approach for the 6 GHz spectrum, and at NBTC, who introduced the ongoing efforts by the Thai government to prepare for the allocation.

FCC began by discussing how the demand for wireless broadband has exploded in the past few years, especially amidst the COVID-19 pandemic when most of the work has been conducted remotely. In 2020, the FCC made 1,200 MHz of spectrum in the 5.925 – 7.125 GHz (6 GHz) band available for unlicensed use by wireless devices. The FCC concluded that its actions would ease congestion, usher in a new generation of faster, better-performing devices, and advance the agency's goal of making broadband connectivity available to all Americans, especially those in rural and underserved areas. In regards to the technical and operational rules, Standard Power Access Point is limited to U-NII-5 & 7, which can operate outdoors and must be under the control of an Automated Frequency Coordination (AFC) system. Low Power Indoor Access Point can operate throughout the entire 1200 MHz, but is limited to indoor usage. To develop the rules, FCC directed industry to form multi-stakeholder groups (including three workstreams who submitted several filings), and issued public notices on client-to-client communications and AFC System proposals.

NBTC elaborated on the timeline, studies, work plans, and other issues facing regulators in preparation of the rollout of 6 GHz spectrum in Thailand. Through 2021, NBTC conducted technology and international

regulatory surveys, reviewed existing uses and regulatory readiness, analyzed possible policy options, conducted early consultation, developed analytical reports, and issued the following “NBTC Decision” in January 2022:

- 5.925 GHz – 6.425 GHz (lower band) will be available for unlicensed use by Q4 2022
- 6.425 GHz – 7.125 GHz (upper band) needs to be decided after Q4 2023, which is subject to the results from World Radio-communication Conference (WRC-23) study.

With other key issues still in consideration, such as transmission power limits, spectrum access criteria, and device licensing schemes, the Thai government is developing regulations with public consultation.

The speakers also discussed the concern about the coexistence of the incumbent and new services, indoor/outdoor applications, industrial use cases, and the data collection in the 6 GHz spectrum allocation and development.

Session 3

Addressing a Fast-Changing Technology Ecosystem: New Opportunities, Challenges, and Regulatory Environment

This session was moderated by ANSI, and included three speakers from the Dynamic Spectrum Alliance (DSA), the Office of Engineering Technology at FCC, and the Spectrum Policy Division at the Korean Ministry of Science and ICT.

DSA addressed the importance of unlicensed access to the 6 GHz band for the following reasons:

- The current and future use cases empowered by new technologies are driving demand, density, and high bandwidth for Wi-Fi services;
- An allocation of 500 MHz in lieu of the full 5925-7125 MHz is not sufficient;
- Social and economic benefits flow from designating the full 6 GHz band for unlicensed use based on the studies in many countries;
- There is significant opportunity cost to inaction and waiting longer;
- Wi-Fi technology, standards, and interoperability are all in place today, and are ready for regulatory action;
- With the right regulatory framework, Fixed Service and FSS incumbents can continue and grow their primary licensed uses.
- Considering coexistence, the Low Power Indoor (LPI) and Very Low Power (VLP) RLANs can coexist with existing incumbent services in the band, and the Standard Power RLANs can coexist with incumbents using Automated Frequency Coordination (AFC).
- Permitting license-exempt technologies throughout the full 6 GHz band is the best way to support both future growth and innovation in 5G through 5G offloading, backhaul, and NR-U.

FCC reiterated key points from the previous FCC presentation, and addressed the FCC’s emphasis on driving innovation and creating greater spectrum efficiencies. Dealing with incumbent services and legacy systems are challenges from regulatory, technical, and legal standpoints, and the FCC’s primary objective in repurposing the spectrum is to protect the incumbents from harmful interference, as well as to have an automatic frequency coordination system that ensures the operational environment is in place to

enable that protection. He also introduced the Public Notice ET Docket 21-352 that was issued last September, and that the FCC is working on proposals received with the submitting entities.

Representing best practices from other countries in the region, the speaker from the Korean Ministry of Science and ICT provided an informative analysis of the spectrum policy and management system for 6 GHz band in the fast-changing technology ecosystem in South Korea. As the radio frequency spectrum resources have become essential for every industry, the spectrum provision can enhance the overall competitiveness of a country. The existing spectrum management system is no longer efficient for timely spectrum provision. In order to create the environment for wide activation of technologies and services using the 6 GHz band, Korea promoted the government-industry collaboration mechanism to accelerate ecosystem building. He also elaborated on a case study where the Wi-Fi performance was improved in subway train using 5G at 28 GHz as a backhaul to install Wi-Fi 6E at 2.4 GHz / 5 GHz / 6 GHz, compared to the inefficient current model which uses LTE as a backhaul to deploy Wi-Fi 4/5 operating at 2.4 GHz / 5 GHz. The Wi-Fi speed in each car was significantly increased from 70 Mbps to 700 Mbps with the new system. He also offered consultations with the Korean industry partners for the Thailand government if they are seeking solutions for launching subway Wi-Fi using 5G 28 GHz and Wi-Fi 6E.

The speakers also answered audience questions, focusing on the public benefits of license-exempt operations in the 6 GHz spectrum band, the regulatory considerations and implementation of the AFC system in the U.S., and the U.S. industry's commitment to making the 6 GHz band (5.925–7.125 GHz) available for unlicensed broadband operations.

Session 4

Use Cases/Investment Opportunities

This session was moderated by the U.S. Commercial Service Bangkok, with five speakers from U.S. industry: Intel, Broadcom, Cisco Systems, Qualcomm, and Meta Platforms. This session provided a platform for leading U.S. companies to present case studies and best practices for 6 GHz spectrum band implementation under various scenarios, and the potential opportunities for future investment.

Intel introduced relevant standards, certifications, products, and the global ecosystem of 6 GHz Wi-Fi technology. With the Wi-Fi 6E products ecosystem rapidly maturing, Intel has also launched cutting-edge products integrated with or configured to Wi-Fi 6E, including wireless solutions, PC platforms, mobile gaming platforms, and more.

Broadcom addressed the organization's view that 6 GHz Wi-Fi is critical for wireless broadband. As the maker of chipsets that enable LTE and 5G modems, Broadcom enables backhauls for a vast array of communication products. The broadband investment is largely based on the quality of the backhaul and the wireless interface to the subscribers. As broadband migrates to 10 Gbps, wireless devices need to keep up. With high speed and low latency, Wi-Fi 6E and Wi-Fi 7 are specially designed to take advantage of the entire 6 GHz band with more channels to avoid channel overlapping and interference in a dense networking environment, such as enterprises and venues. The delay in making regulatory decisions and investment can cause countries to quickly fall behind in telecom infrastructure.

From an enterprise perspective, the speaker from Cisco Systems explained although Wi-Fi 5 or 6 supported 80 MHz channels, enterprise systems mainly focus on high-density design in terms of both coverage and capacity. In the 5 GHz band, 40 MHz is the sweet spot for high-density designs at a 12m spacing minimum, but it still has a finite limit. A reduction of just 1m will lead to an unacceptable increase in co-channel interference. The fundamental problem is not solved with only 500 MHz in the 6 GHz band. The full 1200 MHz is really what makes the 6 GHz possible with additional bandwidth and associated

benefits. He further elaborated the industrial use cases of the 6 GHz band, such as the autonomous vehicle in a more complex operating environment such as warehouses and mining sites, as well as using VR to train artificial intelligence for that autonomous operation.

Qualcomm, on the other hand, focused more on the use cases from the consumer perspective. A Wi-Fi home in 2025 will drive the needs of unlicensed spectrums with varied applications that require high speed and low latency in two-way traffic, including cloud-based gaming, higher-quality teleconferencing, electric vehicle, wireless XR, 8K video streaming, smart security devices with HD videos, and high-density deployment mesh network. Qualcomm has end-to-end Wi-Fi 6E products that can support across access points and client portfolios.

Meta Platforms presented its vision on building the metaverse and the importance of 6 GHz band for this vision. Meta envisions the connections are made across three worlds in the metaverse, the physical, the augmented (adding layers of utility and information to the physical world), and the virtual (a complete virtual experience that transcends time and space). In the future, people will be able to move fluidly between these three worlds. Better networking infrastructure and new spectrum allocation to Wi-Fi coupled with existing allocations to 5G will ultimately boost the revolution of VR in the future. The metaverse is not just about the hardware ecosystem, but also about the content and influencers in the next generation of entrepreneurs, which need to be enabled with the advantages of 5G, Wi-Fi 6E and 7 (6 GHz). 6 GHz will also bring the new “Wi-Fi highways” through a large number of 160 MHz and 320 MHz channels, futureproofing the spectrum to support future traffic increases.

Session 5

Summary Panel – Next Steps and Recommendations

As the summary of the workshop, the U.S. Embassy – Bangkok moderated the last session with Meta Platforms, FCC, and ITA providing an overview of the key insights shared by experts across the two days of the workshop, and also suggested next steps and recommendations for the regulators in Thailand and other ASEAN countries:

- Broadband in general, including 5G, fiber, and other networks, will benefit from having Wi-Fi available on the full 1200 MHz band.
- Wi-Fi and 6 GHz band will make 5G more successful, and there are many new use cases empowered by emerging technologies, which can be helpful revenue drivers.
- As a major accelerator of digital transformation, license-exempt allocation of the 6 GHz spectrum band can bring significant economic and social benefits, and the opportunity cost for waiting is also substantial. A year of delay in decision-making can put a country behind by at least three years in building the landscape for innovation and national competitiveness.
- Both 5G and the unlicensed use of the 6 GHz band are instrumental to the overall ecosystem for connectivity and broadband access. To make the new technologies flourish, a country needs policies to ensure all of them have access to the appropriate amount of spectrum.
- Under the WRC-23 agenda item 1.2, there is a global component that only considered the 7.025-7.125 portion of the band. It’s only in region one where the 6.425 GHz – 7.125 GHz (upper band) is considered. If a country is not in region one, there is no need to wait for WRC-23 recommendations. Many countries in region two, such as the U.S., Canada, and Brazil are already considering the full 1200 MHz band.
- The WRC-23 might find that 100 MHz has the potential for an IMT allocation, but it does not mean that regulators have to adopt that since they can also choose many other IMT designations.

Relevant Links

Links to a flyer, the final agenda, and other materials from the workshop are available on the U.S.-Indo-Pacific STCP website:

https://www.standardsportal.org/usa_en/toolbox/US%E2%80%93Indo-Pacific-STCP.aspx

Included in the materials on that website is a list of compiled resources and links, as well as specific requests that came out of this workshop.

PARTICIPANT AND STAKEHOLDER FEEDBACK

24 participants, or approximately 16% of workshop participants, filled out an AAR questionnaire, which was hosted online on ANSI's sli.do platform. Highlights from the questionnaires include:

- **83%** of surveyed respondents indicated that they felt the workshop met their objectives.
- **83%** of surveyed respondents felt that the workshop will have a positive impact on the development of next-generation devices.
- **83%** of surveyed respondents indicated that the workshop helped promote the adoption of international best practices and standards of the 6 GHz spectrum band allocation.
- **78%** thought that the workshop positively demonstrated relevant use cases and application of advanced technologies.
- **78%** indicated that the workshop demonstrated the positive social and economic benefits of allocating 6 GHz band for license-exempt use.

Additional details from survey responses include:

- **A sector-based association** discussed how the workshop highlighted that the current unlicensed spectrum in Thailand is too limited causing industries to move slowly in adopting beneficial automated machinery that uses wireless technology. They also credited the workshop with providing a kick start to the process which they believe will help Thailand adopt 6 GHz spectrum regulations much more quickly now.
- **A U.S.-based company** discussed the importance of a deeper relationship between Thailand and the FCC along with how the FCC can help strengthen the adoption of new regulations across the ASEAN region. They highlighted how the workshop provided a forum to deeply communicate with the FCC and allow Thai officials and the private sector to identify new avenues to engage with the FCC in the future.
- **A national utility** mentioned that the workshop will help spur regulators into adopting best practices as well as that in doing so current private sector actors will also be spurred to invest in innovation and new technologies to take advantage of the new regulatory environment.
- **A government ministry** highlighted how the discussions in the workshop can help their national regulators better address the same issues and speed up the adoption of international best practices and standards.

Since the workshop took place, ANSI followed up via email with additional participants. All respondents indicated that they felt the workshop was very useful and should be replicated across the region or even globally. Additional highlights from the responses are below:

- All respondents reported that the audience was well informed of potential new and innovative applications that will benefit from the unlicensed use of the 6 GHz band.
- **A U.S.-based company** reported that has had a positive impact on discussions around the unlicensed allocation of the lower band in the 6 GHz spectrum. Additionally, they reported that they will be coordinating with other industry and regulators for a coming public consultation on the subject in Q3 2022.
- **A U.S.-based company** indicated that they have continued to be in constant contact with the relevant Thai ministries since the workshop.
- **A sector-based industry association** reported that they have set up a meeting with Indonesian counterparts to build off of the workshop.
- **A U.S. government agency** discussed cybersecurity challenges as being an additional potential barrier to increased U.S. competition in the country and region more broadly. They indicated that this may be an area to pursue future workshops and exchange on.