Executive Summary

The Dynamic Spectrum Alliance (DSA) strongly supports the Ministry of Internal Affairs and Communications' initiative to modernize spectrum policy through the Frequency Reorganization Action Plan. The DSA urges Japan to authorize full 1,200 MHz (5925–7125 MHz) license-exempt access to the 6 GHz band, supported by Automated Frequency Coordination (AFC) frameworks for standard-power operations, ensuring both innovation and incumbent protection.

Full-band access is essential for realizing the transformative potential of Wi-Fi 7, Wi-Fi 8, and future wireless standards—enabling wide channels, multi-gigabit throughput, ultra-low latency, and reliable connectivity for advanced applications, from AR/VR to smart manufacturing. International experience demonstrates that full, harmonized 6 GHz access accelerates device ecosystem growth, reduces costs, and fosters innovation on a global scale.

Technical analysis and global best practice show that AFC-enabled standard-power operation can provide robust, high-performance coverage for indoor and outdoor use, while protecting critical incumbents through real-time, site-specific spectrum assignments. Coexistence studies confirm that very low power (VLP) and low power indoor (LPI) devices can safely operate without harmful interference to incumbent services, when appropriate mitigations are applied.

The economic evidence highlights Wi-Fi's vital role in Japan's digital economy, projected to contribute over $250 billion in value in 2021 and nearly $325 billion by 2025. License-exempt access to the full 6 GHz band will bridge urban–rural divides, promote affordable broadband, and drive digital inclusion (Realizing a society where everyone can easily use computers and the Internet). It will also ensure Japan remains globally competitive and future-ready in the era of digital transformation.

The DSA encourages Japan to move swiftly to implement a forward-looking, harmonized regulatory framework with full-band license-exempt access, AFC-enabled standard power, and support for LPI and VLP devices. This will unlock Japan's 6 GHz potential, safeguard incumbent operations, and deliver resilient, high-performance wireless connectivity for all.

Dynamic Spectrum Alliance Limited
http://www.dynamicspectrumalliance.org

October 14, 2025

Ministry of Internal Affairs and Communications
2-1-2 Kasumigaseki, Chiyoda-ku
Tokyo 100-8926, Japan

Re: Comment on the Draft Frequency Reorganization Action Plan

Dear Sir/Madam,

The Dynamic Spectrum Alliance[1] (DSA) recognizes the entire 6 GHz band (5925–7125 MHz) as a cornerstone for Japan's digital future, opening transformative opportunities for nationwide wireless innovation and connectivity. Making the full 1200 MHz of contiguous spectrum available for license-exempt use will empower the latest Wi-Fi standards, including Wi-Fi 7 and Wi-Fi 8, to deliver multi-gigabit speeds, ultra-low latency, and highly reliable performance critical for advanced applications such as augmented and virtual reality (AR/VR), telemedicine, smart manufacturing, and industrial automation.

Worldwide, leading economies have embraced harmonized, full-band license-exempt access to the 6 GHz spectrum, fueling rapid ecosystem expansion, driving down device costs through global economies of scale, and accelerating innovation across the wireless ecosystem. Japan now has a unique opportunity to align with these global best practices by adopting a comprehensive 6 GHz regulatory framework that includes full-band access supported by Automated Frequency Coordination (AFC) for standard-power operations.

This consultation marks a crucial step toward establishing a forward-looking, efficient regulatory environment that maximizes spectrum utilization, ensures protection for incumbent services, and advances Japan's national priorities, including bridging the digital divide between urban and rural areas while fostering broad economic and social inclusion.

The DSA urges Japan to authorize full-band license-exempt access complemented by robust AFC mechanisms. This approach will lay the groundwork for a truly inclusive and sustainable digital transformation across Japan. We welcome ongoing engagement and stand ready to provide technical expertise, deployment insights, and stakeholder perspectives to contribute to a sustainable and future-proof regulatory environment for entire 6 GHz band.

Sincerely,

Dr. Martha Suárez
President
Dynamic Spectrum Alliance

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[1]The DSA is a global, cross-industry, not for profit organization advocating for laws, regulations, and economic best practices that will lead to more efficient utilization of spectrum, fostering innovation and affordable connectivity for all. Our membership spans multinationals, small-and medium-sized enterprises, as well as academic, research and other organizations from around the world all working to create innovative solutions that will benefit consumers and businesses alike by making spectrum abundant through dynamic spectrum sharing. A full list of DSA members is available on the DSA's website at: https://www.dynamicspectrumalliance.org/members.

Sections of the Comment

Main Text Chapter 3 II: Further Advancement of Wireless LAN and Frequency Expansion, etc.

Main Text Chapter 4 V: 3.4-8.5 GHz, Section 3 (2): Wireless LAN [5/6/6.5 GHz, etc.]

Summary P5: Priority Initiatives <Further Advancement of Wireless LAN and Frequency Expansion, etc.>

1. Full-Band Access (5925–7125 MHz)

The DSA strongly urges Japan to authorize license-exempt use of the entire 1200 MHz of the 6 GHz band (5925 to 7125 MHz) to fully unlock the transformative potential of next-generation wireless technologies. Access to this vast contiguous spectrum provides 59 channels of 20 MHz each, enabling up to seven non-overlapping 160 MHz channels and three simultaneous 320 MHz channels, critical for unleashing the exceptional throughput capabilities and ultra-low latency required by Wi-Fi 7 and the forthcoming Wi-Fi 8 standards.

Wide contiguous bandwidth in the 6 GHz band is indispensable for delivering groundbreaking multi-gigabit-per-second speeds, ultra-reliable low latency, and consistent high reliability essential for bandwidth-intensive and mission-critical applications. These applications include immersive augmented and virtual reality (AR/VR) deployed for advanced education and industrial training, cutting-edge telemedicine including remote surgery that demands high reliability and low delay, and ultra-reliable automation and control systems in smart manufacturing environments.

In venues characterized by exceptionally dense user and device populations—such as stadiums, universities, airports, and convention centers—the availability of wide, non-overlapping channels is paramount to mitigate co-channel interference and ensure robust connectivity. Such scenarios require access to the full 6 GHz spectrum to deliver reliable and seamless service, which is infeasible with fragmented or partial allocations. Jurisdictions like the United States, Canada, South Korea and Saudi Arabia have demonstrated the extensive benefits of full-band access, enabling a rapidly expanding device ecosystem, accelerating vendor and network innovation, lowering device costs through economies of scale, and expediting deployment of new use cases.

Critically, opening the entire 6 GHz band for license-exempt use addresses the persistent mid-band spectrum scarcity impacting broadband expansion and 5G traffic offload. This scarcity is particularly acute in geographically vast and diverse markets such as Japan, where bridging urban-rural digital divides requires abundant, flexible wireless capacity.

By enabling a harmonized, full-band framework for license-exempt use, Japan will position itself as a global leader in digital transformation, unlock immense socioeconomic value across multiple sectors, and future-proof its wireless infrastructure to accommodate escalating demand and rapidly evolving application requirements.

2. AFC-Enabled Standard Power Operations

The DSA strongly supports the prompt deployment of Automated Frequency Coordination (AFC) frameworks to enable standard-power WLAN devices throughout the entire 5925–7125 MHz band. AFC is a cloud-based, real-time spectrum management system that dynamically assigns operating frequencies and maximum permissible power for each standard-power access point. The determination leverages precise device location, antenna height, and up-to-date regulatory registry data on incumbent links such as fixed microwave, public safety, and utility operations.

Through rigorous interference modeling and real-time operational coordination, AFC permits substantially higher transmit power for both indoor and outdoor use than static regulatory limits would

allow. This flexibility significantly extends the reach and performance of 6 GHz Wi-Fi, supporting diverse environments, from enterprise campuses and crowded public venues to last-mile fixed wireless access and smart infrastructure.

AFC-enabled standard-power operation markedly enhances coverage and network capacity versus limited-power modes like LPI and VLP. By allowing transmit power levels up to 36 dBm EIRP—the authorized maximum in mature jurisdictions including the U.S. and Canada—this approach improves link budgets to enable signals to travel further and penetrate challenging indoor environments more effectively. With signal strength up to sixty-three times greater, residential users can benefit from a higher-power, longer-range version of 6 GHz Wi-Fi that delivers high-performance, whole-home coverage[2]. This enhanced capability reduces the number of access points required to achieve a given coverage area, thereby lowering capital expenditures and simplifying operations for large-scale campus, municipal, and outdoor deployments.

Moreover, AFC's data-driven approach combines regulator-maintained incumbent registries with advanced propagation and interference modeling incorporating device location accuracy, antenna height, terrain, and environmental conditions to enable precise, site-specific frequency and power assignments. This proactive coordination eliminates common spectrum sharing issues such as false detections and service interruptions inherent to reactive in-band sensing techniques like Dynamic Frequency Selection (DFS), resulting in a stable and predictable spectrum usage environment essential for enterprise-grade wireless networks and stringent service-level agreements.

The growing adoption of open-source solutions, such as the OpenAFC initiative, alongside commercial AFC offerings, demonstrates a maturing ecosystem with robust industry backing, scalability for nationwide rollouts, and clear pathways toward realizing Japan's AFC-enabled standard-power WLAN deployments.

Effective implementation of AFC in Japan will unlock the full economic and technical potential of the 6 GHz band, providing ubiquitous fiber-class Wi-Fi coverage while ensuring zero harmful interference to critical incumbent systems. Such a regulatory foundation is crucial for fostering sustainable innovation, addressing rising wireless capacity demands, and advancing Japan's global leadership in digital connectivity

3. Coexistence with Broadcasting Services in the 6 GHz Band

Extensive technical studies employing large-scale Monte Carlo simulations over the contiguous United States have demonstrated an insignificant risk of harmful interference from very low power (VLP) license-exempt devices to incumbent broadcast auxiliary services, including Broadcast TV Pickup (TP) central receive stations, across the 6 GHz band. These analyses meticulously incorporate real-world operational parameters, including licensed incumbent receiver locations and heights, antenna radiation patterns, transmitter mobility models, and geographically representative VLP device deployment densities proportional to population distribution.

The simulation framework is based on FCC-endorsed propagation models and adopts conservative assumptions, such as maximum power levels and worst-case deployment conditions. Results indicate that the probability of interference exceeding stringent industry thresholds (e.g., -6 dB interference-to-noise ratio) at any given TP receiver site is vanishingly low—typically on the order of 0.0001 or less over millions of simulated scenarios. Importantly, regulatory determinations clarify that even exceedance of this threshold does not necessarily constitute harmful interference, further reinforcing

[2] https://www.qualcomm.com/content/dam/qcomm-martech/dm-assets/documents/Unlocking-6-GHz-Wi-Fi-whitepaper-Qualcomm-AFC-Suite.pdf

the conservative nature of these findings[3].

Additional technical mitigations include operators' dynamic management of TP links—such as antenna orientation, transmission power adjustments, and site selection—along with inherently robust link margin and receiver sensitivity designs. The combined effect of these factors reduces interference risks well below levels harmful to incumbent operations.

Complementing this, a regulator-submitted study extends this interference probability analysis across all four unlicensed 6 GHz sub-bands (U-NII-5 through U-NII-8), affirming the negligible potential for VLP devices to disrupt TP receivers. The convergence of these studies provides a strong, data-driven foundation for regulatory confidence in authorizing VLP devices throughout the full 6 GHz band, harmonizing unlicensed access with incumbent broadcast service protection essential to Japan's media distribution infrastructure.

4. Economic and Social Impact of Wi-Fi in Japan

Wi-Fi technology represents a significant economic driver in Japan, with an estimated contribution of approximately $251.1 billion in 2021, projected to grow to nearly $325 billion by 2025[4]. This substantial contribution underscores Wi-Fi's role as a critical enabler of digital connectivity, economic productivity, and social inclusion across the country.

Key drivers of Wi-Fi's economic value in Japan include widespread residential adoption, which supports remote work, distance learning, telemedicine, and smart home applications. Residential Wi-Fi also plays a pivotal role in bridging broadband gaps, particularly in rural and less-served areas, enabling equitable access to modern digital services without the need for extensive wired infrastructure.

Enterprise Wi-Fi further amplifies economic value by providing cost-effective, high-capacity connectivity in offices, campuses, and industrial environments, facilitating enhanced voice and data communications, and enabling advanced applications. These technologies foster innovation, increase productivity, and boost competitiveness in key sectors.

Public Wi-Fi access points contribute social value by offering free or affordable internet connectivity in public venues, enhancing digital inclusion for underserved populations. Wireless Internet Service Providers (WISPs) leverage Wi-Fi to extend broadband service into unserved or underserved regions, driving regional economic growth and job creation.

The broader Wi-Fi ecosystem, encompassing manufacturers, service providers, and technology developers, generates significant economic output and employment, reinforcing the sector as a vital component of Japan's digital economy. The continued allocation of new spectrum, such as the 6 GHz band, along with advancements in Wi-Fi technology, will further amplify these benefits, supporting Japan's vision for a digitally inclusive and innovative society.

5. Conclusion

The DSA respectfully submits that authorizing license-exempt access to the full 1200 MHz of the 6 GHz band, supported by the deployment of AFC frameworks, represents a critical policy decision for Japan's digital future. Comprehensive access to this spectrum will ensure that next-generation wireless technologies, including Wi-Fi 7 and Wi-Fi 8, can deliver the multi-gigabit throughput, ultra-low latency,

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[3] https://www.fcc.gov/ecfs/document/10628696224385/1

[4] https://www.teleadvs.com/wp-content/uploads/The-Economic-Value-of-Wi-Fi-A-Global-View_2021-2025.pdf

and high reliability required to support advanced applications across education, healthcare, manufacturing, and public infrastructure.

Empirical evidence demonstrates that coexistence with incumbent services can be achieved without harmful interference, while AFC-enabled standard-power operations provide a proven mechanism for safeguarding critical incumbent systems. At the same time, full-band access will address mid-band spectrum scarcity, reduce infrastructure costs, and accelerate deployment of high-performance connectivity across both urban and rural areas.

By adopting a harmonized regulatory framework, Japan will align itself with global best practices, unlock significant economies of scale in device manufacturing, and catalyze innovation across the wireless ecosystem, ultimately benefiting consumers, businesses, and society at large

The DSA urges Japan's regulators to adopt a forward-looking policy that enables license-exempt use of the entire 5925–7125 MHz band under an AFC-enabled framework. This decisive action will safeguard incumbent operations, expand broadband capacity, and position Japan as a global leader in digital transformation, ensuring that its wireless infrastructure remains resilient, inclusive, and future-ready.

The DSA looks forward to continuing its collaboration with Japan authorities to enable a forward-looking and inclusive wireless policy that benefits all stakeholders.