HAPS Alliance
HIGH ALTITUDE PLATFORM STATION

Creating an Enabling Regulatory Environment for HAPS Deployment
February 2021

The HAPS Alliance is an association of world-leading telecommunications, technology, aviation, and aerospace companies that are united in promoting the use of high altitude vehicles in the Earth's stratosphere to eliminate the digital divide and bring connectivity to more people, places, and things worldwide. This high-level overview of HAPS provides regulatory recommendations to enable the stratospheric ecosystem.

What are HAPS?

High-Altitude Platform Stations (HAPS) are stratospheric platforms--e.g., fixed-wing aircraft, balloons, and airships--that can provide a variety of connectivity and other services to end users on the ground. For example, HAPS can act as high-altitude IMT base stations (HIBS[1]), providing connectivity directly to mobile handsets, modems and IoT devices using standard 4G, 5G, and future evolutions in the service-link, with network latency that is comparable to that of terrestrial cell towers but with up to 200 times the geographic coverage from a single vehicle. HAPS also can provide fixed wireless backhaul services or complement satellite connectivity. HAPS backhaul connectivity may include a HAPS-ground fixed link and/or a non-terrestrial gateway link (e.g., inter-HAPS or HAPS-satellite links), which may be used when it is difficult to deploy ground gateway stations.

Why Should Regulators Support HAPS Deployment?

Over the past few decades, 2.3 billion people have come online, still leaving 3.6 billion without access to the Internet. Terrestrial wireless networks deliver high data rate, low latency connections, and satellites provide broad coverage that can scale globally. At the same time, cost and geographic challenges can make it difficult to provide high-capacity, low-latency services to everyone, everywhere solely with existing technologies. HAPS can help telecom service providers overcome these challenges by expanding their coverage to unserved and underserved areas.

Ultimately, stratospheric connectivity can bring millions of people living in unconnected areas online, reconnect people after disasters, build out the next generation of 5G networks, and connect the future of Internet of Things (IoT) devices. In this way, stratospheric connectivity can support policymakers in achieving important United Nations Sustainable Development Goals (SDGs), including Goal 9: universal and affordable Internet access, and national goals such as connecting schools, providing telehealth services, and ensuring disaster preparedness.

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[1] The definition of HIBS is being studied under WRC-23 agenda item 1.4 and WRC-23 would consider modifications of the Radio Regulations (RR) including relaxation of high-altitude definitions, as appropriate. However, for the sake of convenience, this paper assumes HIBS is included in the definition of HAPS as specified in RR No. 1.66A.

What Regulations Can Enable HAPS Deployment?

The HAPS Alliance supports the adoption of the following regulatory reforms to promote the timely, efficient, and cost-effective deployment of HAPS around the world:

- **Harmonized Licensing Frameworks for HAPS Fixed Links.** The HAPS Alliance supports the adoption of a harmonized, flexible, and streamlined approach to HAPS licensing across spectrum bands to permit coexistence of ground-based and stratospheric point-to-point links. To that end, the HAPS Alliance supports adopting fixed point-to-point service licensing frameworks that accommodate stratospheric connectivity. Where practicable, the HAPS Alliance supports the use of self-coordinated light licensing to enable efficient and/or automated coexistence between incumbent ground-based fixed service and HAPS.

- **Use of Mobile Spectrum for HIBS.** The HAPS Alliance supports permitting mobile network operators to use their access spectrum licenses to provide services via HIBS, which will facilitate the rapid deployment of IMT systems into rural areas that currently lack connectivity.

- **Flexible Spectrum Use for Non-terrestrial Gateway Links.** The HAPS Alliance supports authorization for HAPS operators to use suitable spectrum for non-terrestrial gateway links (e.g., use of the fixed/mobile service frequencies for inter-HAPS links, use of the FSS/MSS frequencies for HAPS-satellite links), depending on deployment and regulatory environment.

- **Predictable, Flat Fees for HAPS Fixed Links.** The HAPS Alliance supports the application of low, flat, per-link fees for point-to-point HAPS links, which are essential to promote cost-effective deployment of HAPS into rural and remote areas.

- **Rapid Equipment Type Approval.** The HAPS Alliance encourages national regulators to accept a Supplier's Declaration of Conformity (SDOC) as part of their equipment authorization to facilitate network deployment and emergency preparedness.

- **Streamlined Customs (Import/Export).** The HAPS Alliance supports the adoption of import pre-approvals and streamlined customs clearance, especially for equipment that may be used for disaster communications.

- **Flexible Service Definitions to Support Innovation.** The HAPS ecosystem is rapidly innovating with breakthroughs in aviation and telecommunications technologies. For that reason, regulators should take a flexible view toward HAPS definitions and mobile network regulations to accommodate emerging service types and use cases, including rapid response to disasters, rapid expansion of mobile network coverage, and stratospheric operations below 20 kilometers.

- **Promoting Innovation and Coexistence within National Borders.** The HAPS Alliance supports the rights of national regulatory authorities to develop innovative, flexible policies and regulatory frameworks that advance HAPS deployment within their national borders while also ensuring coexistence of services and avoiding cross-border interference.

For more information about HAPS and how you can enable the development and deployment of stratospheric connectivity, visit www.hapsalliance.org.