



Creating an Enabling Regulatory Environment for HAPS Deployment

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HAPS Alliance
HIGH ALTITUDE PLATFORM STATION

The HAPS Alliance is an alliance of companies pioneering the use of high-altitude platform stations in the Earth's stratosphere. These include world-leading telecommunications, technology, aviation, and aerospace businesses which are united in their mission to utilize the capabilities of HAPS to enhance access to connectivity 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. HAPS platforms include a variety of types – such as 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 (HIBS¹) – providing connectivity directly to mobile handsets, modems and IoT devices using standard 4G / 5G and future evolutions in the service-link. This solution can be provided 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?

5.4 billion people – or 67 percent of the world's population – are using the Internet in 2023. However, this leaves 2.6 billion people who remain offline.

Terrestrial wireless networks deliver high data rate, low latency connections, while 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.

Stratospheric connectivity has the potential to bring millions of people living in unconnected areas online at the most critical moments: reconnecting people after disasters, when building out the next generation of 5G networks, and connecting the future of Internet of Things (IoT) devices.

¹ Resolutions **213 (WRC-23)**, **218 (WRC-23)** and **221 (Rev.WRC-23)** in the Radio Regulations (RR) define "HIBS: High-altitude platform station as IMT base station. The conditions in this Resolution refer to these platforms operating between 18 km and 25 km."

In this way, stratospheric connectivity can support policymakers in achieving important United Nations Sustainable Development Goals (SDGs), including Goal 9:

UN SGD Goal 9: Universal and affordable Internet access, and national goals such as connecting schools, providing telehealth services, and ensuring disaster preparedness.

Furthermore, it should be noted that the international rules (i.e., the RR) for use of HAPS/HIBS have already been readied in the ITU Radiocommunication Sector (ITU-R). The rules for satellite Direct-to-Device (D2D) have not been established currently (to be discussed under WRC-27 Agenda item 1.13):

- **HAPS in the fixed services** – In the WRC-19, 21 GHz, 26 GHz and 38 GHz bands were identified in addition to existing 6 GHz, 28GHz, 31 GHz and 47 GHz bands.
- **HIBS** – In the WRC-23, 700-900 MHz, 1.7 GHz and 2.6 GHz bands were identified in addition to existing 2.1 GHz band.

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 (MNOs) to use their access spectrum licenses to provide services via HIBS, which will facilitate the rapid deployment of IMT systems into rural and remote areas that currently lack connectivity. The HAPS Alliance also supports to implement the revision of the RR approved by WRC-23 in the national regulations of each country in order to utilize the frequency bands identified for use of HIBS (i.e., 700–900 MHz, 1.7–2.1 GHz and 2.6 GHz bands.)
- **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 environment².

- **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.
- **Appropriate fee framework for HIBS.** Based on the fact that HIBS are part of the base stations deployed by MNOs, the HAPS Alliance supports the introduction of an appropriate licensing fee framework for the use of HIBS, such that no additional fee is required if MNOs have already paid the license fee for the ground base station.
- **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 considering the definition of HIBS in the RR¹ and relevant documents (e.g., APT/AWG/REP-127²).
- **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 other services and avoiding cross-border interference (e.g., by bilateral coordination with neighboring countries).

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

² [APT/AWG/REP-127](#) provides information on possible regulatory interpretations and technical analysis for the usage of HAPS gateway-links not specified in the RR, including inter-HAPS and HAPS-satellite links which have not been defined yet in the RR, and technical verification whether there will be impact on the current regulatory provisions of the RR when considering alternative altitude for HAPS from that specified in the RR.