8 August 2019

The Chairman
Malaysian Communications and Multimedia Commission
MCMC Tower 1
Jalan Impact, Cyber 6 63000 Cyberjaya
Selangor Darul Ehsan
Malaysia

Attention: Spectrum Planning Division

Subject: Response to Consultation on WRC-19 Agenda Items

Sincerely,

Christopher Casarrubias
Head, MEALA Policy
christopher.casarrubias@accesspartnership.com

Recoverable Signature

X Christopher Casarrubias

Signed by: 492f2f7b-7c9c-41b8-b330-36935b13a643

Access Partnership
9th Floor, Southside
105 Victoria Street
London SW1E 6QT
United Kingdom

Malaysian Communications and Multimedia Commission

RESPONSE TO PUBLIC CONSTULATION ON WRC-19 AGENDA ITEMS

Agenda Item 1.14:

*to consider, on the basis of ITU-R studies in accordance with Resolution **160 (WRC-15)**, appropriate regulatory actions for high-altitude platform stations (HAPS), within existing fixed-service allocations*

Background

Broadband High-Altitude Platform Stations (HAPS) are a viable, cost-effective way to extend broadband network coverage by offering a fast, flexible, and high capacity, lower latency backhaul and emergency connectivity solution. HAPS capabilities enable compelling use cases for countries with a strong maritime presence, such as Malaysia.

With HAPS technical development on track and supported by a mature and diverse business ecosystem, the only missing enabler for short term commercial rollout is global availability of sufficient spectrum resources.

The international community has acknowledged that new HAPS capabilities require access to more harmonized spectrum capacity. In order to address this issue, ITU member states have decided to consider potential changes to the Radio Regulations under WRC-19 Agenda Item 1.14, which invites to study modifications to existing HAPS identifications and identification of additional spectrum bands for HAPS.

Currently there are three frequency bands identified for HAPS in the fixed services. These are:

- 47.2–47.5 GHz and 47.9 48.2 GHz,
- 27.9-28.2 GHz and 31.0-31.3 GHz,
- 6 440–6 520 MHz (HAPS-ground) and 6 560-6 640 MHz (ground-HAPS).

However, spectrum needs of next-generation HAPS cannot be fully accommodated within these identifications due to either geographical restrictions or technical limitations, and modifications to existing provisions in these are being proposed. Resolution **160** also envisages possibilities of additional spectrum identifications to address HAPS spectrum needs in the following frequency bands:

- 38-39.5 GHz (Global)
- 21.4-22 GHz (Region 2 exclusively)
- 24.25-27.5 GHz (Region 2 exclusively)

ITU-R Working Party 5C (WP 5C), the group responsible for the technical work around Agenda Item 1.14, has completed sharing and compatibility studies between HAPS and services operating or planning to operate in the bands under study as per Resolution 160 (WRC-15).

The work was finalized in May 2019 and all sharing studies documents were elevated to the status of draft new reports (DNRs). The DNRs will be sent to Study Group 5 to be adopted as ITU-R Reports. Technical studies concluded that coexistence between HAPS and other services on a co-primary basis is feasible for all bands under consideration.

WP 5C developed power limits (pfd, eirp masks) that guarantee the protection of incumbent and planned services sharing existing and candidate HAPS bands. These limits are based on the protection criteria of other services and consider worst-case coexistence scenarios. Additionally, proposals for HAPS identifications limit propagation directions to ensure minimal risk of interference with other services.

Proposal

Based on consideration of discussions being conducted in ITU-R and taking into account conclusion of sharing studies, Malaysia is encouraged to supports HAPS identifications on a worldwide basis. The table below summarizes specific options supported in each frequency band in exam.

Band (GHz)	**Method**	**Options (if applicable)**	**Summary**
6.44-6.52	1B1	Option 1 World-Wide Co-primary downlink	Worldwide identification for HAPS to Ground transmissions on a co-primary basis in the band 6 440-6 520 MHz. Existing Resolution updated to contain all regulatory provisions for protection of existing/planned services.
27.9-28.2	6B1	Worldwide identification in downlink	Worldwide identification for HAPS to Ground transmissions in the band 27.9-28.2 GHz. Resolution updated to provide all regulatory provisions for the protection of existing/planned services.
31-31.3	7B1	Option 1 1a - World-Wide Co-primary downlink 1b - World-Wide Co-primary uplink	Worldwide identification for HAPS to Ground transmissions (option 1a) and Ground to HAPS (option 1b) on a co-primary basis in the band 31-31.3 GHz. Resolution updated to provide all regulatory provisions for the protection of existing/planned services.
38-39.5	8B2	Option 1C	Worldwide identification on a co-primary basis for Ground to HAPS transmissions in the band 38-39.5 GHz.
47.2-47.5 / 47.9-48.2	9B1	Example 2	Proposed modifications to Resolution 122 to facilitate use of HAPS uplink in case of rain.

The regulatory measures envisaged by the options listed in the table above are the most appropriate and balanced solutions to facilitate the use of HAPS while ensuring that no undue constraint is posed to the operation of existing and planned services operating in the same frequency bands:

- these options do not establish any type of priority for HAPS on other services operating on a primary basis;
- Resolutions associated to these options contain regulatory provisions (pfd, eirp limits) for HAPS operation based on worst-case interference scenarios assumptions: compliance with these stringent power limits ensure protection of incumbent and planned services (including FS, FSS, IMT);

Conclusion

HAPS are a new technological solution that promises to address many of the issues that are delaying broadband penetration in countries with hard to reach geographies such as Malaysia. HAPS also enable emergency relief services in the event of a natural disasters such as flooding.

Based on technical studies demonstrating coexistence with other services in all bands under consideration, Malaysia is encouraged to support worldwide HAPS identifications, with regulatory provisions to facilitate sharing (as detailed in the table above) in the following frequency bands:

- 6.44-6.52 GHz;
- 27.9-28.2 GHz;
- 31-31.3 GHz;
- 38-39.5 GHz;
- 47.2-47.5 / 47.9-48.2.