1st ITU INTER-REGIONAL WORKSHOP ON WRC-19 PREPARATION (Geneva, 21-22 November 2017)

HAPS /
WRC-19 agenda item 1.14

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Chairman, WP 5C
HAPS: highlights

- Station located on an object at an altitude of 20-50 km and at a specified, nominal, fixed point relative to the Earth
- Being located at a nominal fixed points, they have been considered to belong to Fixed Service

Frequencies:

<table>
<thead>
<tr>
<th>WRC</th>
<th>Frequency</th>
<th>Geographical</th>
<th>Avail BW</th>
</tr>
</thead>
<tbody>
<tr>
<td>WRC-97</td>
<td>47.2-47.5 GHz and 47.9-48.2 GHz</td>
<td></td>
<td>600 MHz</td>
</tr>
<tr>
<td>WRC-2000</td>
<td>27.9-28.2 GHz(D), 31.0-31.3 GHz(U) outside Region 2</td>
<td>23 Countries</td>
<td>600 MHz</td>
</tr>
<tr>
<td>WRC12</td>
<td>6.4-6.520 MHz(D), 6.560-6.640 MHz(U)</td>
<td></td>
<td>160 MHz</td>
</tr>
<tr>
<td>WRC15</td>
<td>21.4-22 GHz and 24.25-27.5 GHz</td>
<td>Region 2</td>
<td>3.85 GHz</td>
</tr>
<tr>
<td></td>
<td>38-39.5 on a global</td>
<td></td>
<td>1.5 GHz</td>
</tr>
</tbody>
</table>

- The 2 frequency added from WRC15 are much wider than the already existing ones, allowing significant increase of transmission capacity
HAPS : highlights

-WRC19 AI 1.14 was designated to consider, on the basis of ITU-R studies in accordance with Resolution COM6/21 (WRC-15), appropriate regulatory actions for high-altitude platform stations (HAPS), within existing fixed-service allocations.

- Res. 160, associated to this AI, contains indications of elements and considerations related to the need of specific studies, as well as indication of objectives of required study.

WP 5C is indicated as responsible Group, WP 4A, WP 4C, WP 5A, WP 5D, WP 7B, WP 7C are indicated as concerned groups.

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Resolution 160: considerations

- there is a need for greater broadband connectivity and telecommunication services in underserved communities and in rural and remote areas;
- current technologies can be used for broadband applications delivered by base stations operating at high altitudes;
- high-altitude platform stations (HAPS) are one possible means for providing fixed broadband connectivity that would enable wireless broadband deployment in remote areas, including mountainous, coastal and sandy desert areas;
- that HAPS may also be used for disaster recovery communications

But existing services and their applications shall be protected from HAPS applications, and no undue constraints shall be imposed on the future development of existing services by HAPS;
Resolution 160 : requests

- to study additional spectrum needs for gateway and fixed terminal links for HAPS to provide broadband connectivity in the fixed service taking into account:
  – the existing identifications and deployments of HAPS systems;
  – the deployment scenarios envisioned for HAPS broadband systems and related requirements such as in remote areas;
  – the technical and operational characteristics of HAPS systems, including the evolution of HAPS through advances in technology and spectrally-efficient techniques, and their deployment;
- to study the suitability of using the existing identifications
- to study appropriate modifications to the existing footnotes and resolutions
- to study, following frequency bands already allocated to the FS on a primary basis:
  – on a global level: 38-39.5 GHz, and
  – on a regional level: in Region 2, 21.4-22 GHz and 24.25-27.5 GHz,
-studies shall include sharing and compatibility studies to ensure protection of existing services

ITU-R Recommendations and Reports to developed, as appropriate
Activities in WP5C

-Following deliverables are under progress, available as Annexes to Chairman’s Report, intended to be finalized as:

- CPM text and workplan
- New Recommendation including deployment and technical characteristics of broadband HAPS, to be used in sharing and compatibility studies.
- New Report including identifications and spectrum needs of (HAPS) broadband links operating in the fixed service.
- Sharing and compatibility studies for HAPS broadband systems in the 6 400-6 520 MHz and 6 560-6 640 MHz frequency
- Sharing and compatibility studies for HAPS broadband systems in the 21.4-22 GHz frequency range in Region 2
- Sharing and compatibility studies for HAPS broadband systems in the 24.25-27.5 GHz frequency range in Region 2
- Sharing and compatibility studies for HAPS broadband systems in the 27.9-28.2 and 31.0-31.3 GHz frequency
- Sharing and compatibility studies for HAPS broadband systems in the 38-39.5 GHz frequency
- Sharing and compatibility studies for HAPS broadband systems in the 47.2-47.5 GHz and 47.9-48.2 GHz frequency range