ATU Guidelines on Wi-Fi in 6 GHz Band (5 925 – 6 425 MHz)

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Wi-Fi 6E Expanding Wireless Opportunity

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The African Telecommunications Union (ATU) is a specialised institution of the African Union (AU) in the field of telecommunications and ICTs.

ATU developed recommendations on the implementation of emerging technologies in Africa including Wi-Fi in 6GHz and 5G NR-U.

To harness the potential of emerging technologies to improve peoples lives in Africa.

Recommendation provides guidance on the implementation of WiFi in 6 GHz to administrations on technical issues harmonise implementation and use of the technology enabling the most effective and efficient use of the spectrum to deliver broadband services in Africa – while minimizing impact to incumbent services – and facilitating growth of the emerging technologies.
All emerging technologies require access to spectrum. Policy harmonisation is important for bringing innovative connectivity solutions to ATA member nations. COVID-19 pandemic has increased demand for home broadband internet access. Bringing digital connectivity requires a mix of technologies licensed and unlicensed. Radio LANs (RLANs) are widely used to connect tablets, TVs, cameras, and speakers.
Main Elements For Consideration - Highlights

**WiFi Complement**
IEEE-based technologies complement 5G/IMT-2020

**Coexistence**
3GPP 5G NR-Unlicensed is able to coexist with Wi-Fi

**Wide Range of Service**
high-resolution video, Wi-Fi calling, smart home, hotspot access, smart city, AR/VR seamless roaming

**Support 5G Networks**
5G FWA is expected to deliver home connectivity to CPE devices

**Increased capabilities**
lower latency, higher throughput, better traffic offloading support 160 MHz channels, advanced modulation techniques.

**Multi-band & Triband devices**
smartly and seamlessly switch between 2.4, 5, and 60 GHz frequencies

Middle East and Africa, by 2023, 25% of devices will connect to the internet by Wi-Fi (Cisco)
The case for enabling licence-exempt access to the 6 GHz band

1. Economic value of Wi-Fi
2. Wi-Fi complements 4G and 5G
3. Support for innovation
4. COVID-19 pandemic resilience and recovery
5. Enables evolution of Wi-Fi (Wi-Fi 6E)
6. Additional Licence-exempt spectrum in 6 GHz band
<table>
<thead>
<tr>
<th>Country/Region</th>
<th>Range</th>
<th>Use</th>
<th>Power Limits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Europe (CEPT)</td>
<td>5945 - 6425 MHz</td>
<td>Low Power Indoor</td>
<td>23 dBm - 200mW</td>
</tr>
<tr>
<td></td>
<td>5945 - 6425 MHz</td>
<td>Very Low Power portable</td>
<td>14 dBm - 25mW</td>
</tr>
<tr>
<td>USA</td>
<td>5925 - 6425 MHz</td>
<td>Database connected</td>
<td>36 dBm - 4W</td>
</tr>
<tr>
<td></td>
<td>6525 - 6875 MHz</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>5925 - 7125 MHz</td>
<td>Low Power Indoor</td>
<td>30 dBm - 1W</td>
</tr>
<tr>
<td>Korea</td>
<td>5925 - 7125 MHz</td>
<td>Low Power Indoor</td>
<td>24 dBm - 250mW</td>
</tr>
<tr>
<td>Chile</td>
<td>5925 - 7125 MHz</td>
<td>Indoor, no external antennas</td>
<td>30 dBm - 1W</td>
</tr>
<tr>
<td>UK</td>
<td>5925 - 6425 MHz</td>
<td>Indoor low power</td>
<td>24 dBm - 250mW</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Outdoor very low power</td>
<td>14 dBm - 25mW</td>
</tr>
<tr>
<td>UAE</td>
<td>5925 - 6425 MHz</td>
<td>Indoor</td>
<td>24 dBm - 250mW</td>
</tr>
<tr>
<td>Brazil</td>
<td>5925 - 7125 MHz</td>
<td>Low Power Indoor</td>
<td>AP: 30 dBm – 1W</td>
</tr>
</tbody>
</table>

Best Practices - growing momentum
ATU Recommendations

**Recommendations**

- **Designate**
  5925 - 6425 MHz for WAS/RLAN restricted to very low power (VLP) (both outdoor and indoor) and low power indoor (LPI) on non-exclusive, non-interference and non-protected basis

- **Adopt**
  Technical and operating conditions and allow all compliant technologies when implementing WAS/RLAN in the frequency band 5925 - 6425 MHz

- **Exempt**
  WAS/RLAN equipment that comply with the technical details from individual licensing.

**Consider**

authorizing any WAS/RLAN systems that operate in the frequency band 5925 - 6425 MHz and comply with operating conditions

**Ensure**

that WAS/RLAN equipment and devices comply with the technical and operating conditions

**Allow**

free (seamless) cross border circulation and use of WAS/RLAN equipment/devices that comply with technical and operational conditions
<table>
<thead>
<tr>
<th>Frequency band</th>
<th>Application</th>
<th>Maximum radiated power or field strength limits</th>
<th>Technical conditions</th>
<th>Additional Information</th>
</tr>
</thead>
</table>
| 5925-6425      | WAS RLAN    | dBm (200 mW) mean e.i.r.p.                    | • Restricted to indoor use only  
• Low Power Indoor (LPI) use only (including trains where metal coated windows (Note 1) are fitted and aircraft  
• Outdoor use (including in road vehicles) is not permitted.  
• An adequate spectrum sharing mechanism shall be implemented for channel access and occupation  
• Mean e.i.r.p. density for in-band emissions – 10 dBm/MHz | • Low Power Indoor (LPI) devices  
• An LPI access point or bridge is a device that is supplied power from a wired connection, has an integrated antenna and is not battery powered.  
• An LPI client device is a device that is connected to an LPI access point or another LPI client device and may or may not be battery powered. |
| 5925-6425      | WAS RLAN    | dBm (25 mW) e.i.r.p.                          | • Very Low Power (VLP) Indoor and outdoor use  
• Use on drones is prohibited  
• An adequate spectrum sharing mechanism shall be implemented for channel access and occupation  
• Maximum mean e.i.r.p. for in-band emissions (Note 2)  
• Mean e.i.r.p. density for in-band emissions – 1 dBm/MHz (note 2) | • Very Low Power (VLP) device is a portable device |

Note 1: Or similar structures made of material with comparable attenuation characteristics.

Note 2: The “mean e.i.r.p.” refers to the e.i.r.p. during the transmission burst, which corresponds to the highest power, if power control is implemented.
Regulatory Best Practices

1. Regulations should keep up with rapidly changing technology
2. Develop policies, strategies and plans
3. Stakeholder Consultation & involvement
4. Collaboration & Partnerships
5. Citizen & Consumer Interests
6. Harmonization & efficient use of spectrum
Thank you