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European Commission  
Radio Spectrum Policy Group – Secretariat  
DG CNECT B4: Spectrum – Office: BU33 7/55  
B-1049 Bruxelles  
Belgium

## RE: DSA Response to the RSPG consultation on Draft Opinion for Common Policy Objectives for WRC 2015

Dear Sirs:

The Dynamic Spectrum Alliance (“DSA”) would like to thank the Radio Spectrum Policy Group for the opportunity to comment on its Draft Opinion for Common Policy Objectives for the upcoming World Radiocommunications Conference 2015 (“WRC-15”). The DSA is a global, cross-industry alliance of more than forty members focused on increasing dynamic access to unused or lightly used radio frequencies.<sup>1</sup> We believe that dynamic spectrum access technology, combined with a balanced approach that recognizes the need for both licensed and licence-exempt access at high, medium, and low frequencies, will best meet Europe’s fundamental policy objectives of:

- *More ubiquitous and affordable broadband access.* This is a core priority for DSA members, who have been making great strides with partners in the effort to improve broadband access across the globe; and
- *Enabling wireless innovation to support social and economic goals.* The wireless ecosystem has experienced tremendous growth in new and creative applications, services, and devices. Policy should foster this innovation, especially as it supports broader social and economic goals such as managing energy consumption, delivering education, or improving city planning.

### Licensed and licence-exempt networks will be needed to meet growing capacity needs

The requirement to support the growing need for Internet access via wireless devices is clear. The rapidly rising demand for wireless data capacity is evident and the DSA understands the need for the WRC to address this issue.

Both licensed and licence-exempt approaches to spectrum access will be necessary to support increased capacity needs. Globally, licence-exempt access to radio frequencies is creating

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<sup>1</sup> For more information regarding the DSA and a full list of members, please visit [www.dynamicspectrumalliance.org](http://www.dynamicspectrumalliance.org).

hundreds of billions of dollars of economic value each year.<sup>2</sup> For example, in Europe, the majority of data traffic sent to wireless devices traverses over Wi-Fi networks.<sup>3</sup> Wi-Fi availability has enabled consumers to use their phones and tablets more intensively to access a variety of online content and services.<sup>4</sup> Use and development of these online services in turn drives demand for licensed and licence-exempt network access, creating a virtuous cycle of investment in content, as well as both licensed and licence-exempt access.

### Use sub-1 GHz and 5 GHz spectrum to improve both capacity and coverage

Making broadband access more ubiquitous is at least as important as enhancing capacity. This is a particular interest of the DSA and applies as much in Europe as in less developed countries. Accomplishing this goal will require more efficient and intensive use of both higher- and lower-frequency spectrum, including available spectrum below 1 GHz and spectrum in the 5 GHz bands.

**Spectrum below 1 GHz:** Consistent with the RSPG's proposed position, member states can and should immediately move forward with spectrum sharing between television broadcasters and licence-exempt wireless devices in the 470-694 MHz band.

There is growing demand for UHF capacity to support wireless applications. Spectrum below 1 GHz has propagation characteristics that allow signals to travel through walls and obstructions, making it valuable for transmitting signals indoors and over longer distances. At the same time, the move towards greater use of mobile devices and hybrid distribution networks has created new opportunities to enjoy TV content well beyond what was envisaged when the current UHF allocation was made.

Given the increasing demand for this sub-1 GHz spectrum, it should be used as intensively as possible. One way to do so, even without action to clear and auction spectrum, is to enable

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<sup>2</sup> Raul Katz, *Assessment of the Economic Value of Unlicensed Spectrum in the United States* (Feb. 2014) (estimated licence-exempt contributions to the U.S. economy at over \$200 billion per year), available at <http://www.wififorward.org/wp-content/uploads/2014/01/Value-of-Unlicensed-Spectrum-to-the-US-Economy-Full-Report.pdf> (last visited Nov. 21, 2014); Richard Thanki, *The Economic Significance of License-Exempt Spectrum to the Future of the Internet* (June 2012), available at [http://research.microsoft.com/en-us/projects/spectrum/economic-significance-of-license-exempt-spectrum-report\\_thanki.pdf](http://research.microsoft.com/en-us/projects/spectrum/economic-significance-of-license-exempt-spectrum-report_thanki.pdf) (last visited June 2, 2014).

<sup>3</sup> A recent Report from the European Broadcasting Union (EBU) estimates that "71% of all wireless data to mobile devices in the [EU] was delivered using Wi-Fi". See the EBU (July 2014) *Spectrum Factsheet*, available [here](#).

<sup>4</sup> According to Richard Thanki, Wi-Fi carries more than 69% of smartphone and tablet traffic globally. Richard Thanki, *The Economic Significance of Licence-Exempt Spectrum to the Future of the Internet*, at 8 (June 2012) (Thanki), available at [http://research.microsoft.com/en-us/projects/spectrum/economic-significance-of-license-exempt-spectrum-report\\_thanki.pdf](http://research.microsoft.com/en-us/projects/spectrum/economic-significance-of-license-exempt-spectrum-report_thanki.pdf) (last visited Dec. 26, 2013).

licence-exempt devices to access vacant channels, or white spaces, between existing television broadcasters. Such an approach ensures that spectrum does not lie fallow.

Allowing access to white spaces on a licence-exempt basis also has significant benefits beyond improving spectrum utilization:

- Licence-exempt access to the TV white spaces mirrors the approach taken in jurisdictions around the globe, such as the United States, the United Kingdom, Canada, and Singapore.<sup>5</sup> Each of these jurisdictions either has adopted or is in the process of adopting rules for licence-exempt access to vacant broadcast television channels.<sup>6</sup> By tracking these developments, the RSPG will help support a global market for these devices, allowing them to be manufactured at scale.
- White spaces use will foster innovation and accelerate technology development because innovators can introduce products and services without seeking permission from regulators or spectrum licencees. Thousands of new licence-exempt devices are produced each year. Wi-Fi devices are the best known, but Bluetooth,<sup>7</sup> Zigbee,<sup>8</sup> and RFID<sup>9</sup> devices have all also experienced rapid growth in the last several years. Machine-to-machine technologies, which often rely on licence-exempt spectrum access, represent a large and growing market as well.
- It will improve broadband coverage in rural and hard-to-reach areas. Licence-exempt access to spectrum below 1 GHz is particularly useful in providing affordable coverage in difficult-to-serve areas.
  - Technologies have already been developed to take advantage of vacant television channels. For example, the IEEE 802.11af standard was developed specifically to enable use of white spaces by Wi-Fi devices. The adoption of the 802.11af standard and subsequent deployment of 802.11af enabled devices is just one example of the robust innovation that can take place if policymakers allow licence-exempt access to this spectrum.

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<sup>5</sup> See Canada (<http://www.ic.gc.ca/eic/site/smt-gst.nsf/eng/sf10493.html>); Singapore (<http://www.ida.gov.sg/policies-and-regulations/consultation-papers-and-decisions/completed/Proposed-Regulatory-Framework-for-TV-White-Space-Operations-in-the-VHF-UHF-Bands>); United Kingdom (<http://stakeholders.ofcom.org.uk/spectrum/tv-white-spaces/consultations-statements/>).

<sup>6</sup> Based on its experience working in these jurisdictions, the DSA has developed model regulations for the licence-exempt use of white spaces. See <http://www.dynamicspectrumalliance.org/submissions.html> (last visited Jan. 5, 2015).

<sup>7</sup> Bluetooth is a standard facilitating hands-free operation of music players, mobile phones, and other devices.

<sup>8</sup> Zigbee powers technologies that benefit from ad hoc and mesh networking solutions, such as home automation.

<sup>9</sup> Radio Frequency Identification (RFID) technologies are used in a variety of industries to track inventory or other objects.

**5 GHz spectrum:** The RSPG should support studying the use of the 5350-5470 MHz band by radio local area networks.

Given the growing importance of Wi-Fi as a connection medium for homes, businesses and public places, we recommend that the RSPG support an agenda item studying secondary use of the 5350-5470 MHz band by radio local area networks (RLANs).

Because the 5350-5470 MHz band is situated immediately between bands currently used by Wi-Fi in many places throughout the globe, it could be accessed with existing Wi-Fi components at little or no incremental cost and would open additional broadband channels already defined for the IEEE 802.11ac standard - which allows speeds up to 1 Gbps. Thus, the 5 GHz bands are particularly useful for delivering Wi-Fi locally, at very high speeds.

Dynamic spectrum access technology provides just the tools needed to prevent harmful interference to existing users of the band. For example, one of the primary users of the 5350-5470 MHz band is the earth exploration satellite service (EESS). Satellites in this service travel over the earth on a publicly accessible, fixed schedule. Dynamic spectrum technologies could disable wireless access to the 5350-5470 MHz band while a satellite is located over a particular area, while freeing up access to that spectrum at all other times. Such an approach would create more spectrum for Wi-Fi while protecting satellite operations from harmful interference.

Adopting a study item during WRC-15 would allow all stakeholders to determine how best to protect primary users of this band while opening it up for meaningful RLAN use.

## Conclusion

The Dynamic Spectrum Alliance welcomes the opportunity to comment on the RSPG's Draft Opinion for Common Policy Objectives for the upcoming World Radiocommunications Conference 2015. Consumers in European will be best served by spectrum policies which encourage efficient use of limited spectrum resources. Consistent with steps being taken by some of the world's leading spectrum regulators, the Dynamic Spectrum Alliance urges the RSPG to support positions at the WRC-15 which recognizes the need for both licensed and licence-exempt access at high, medium, and low frequencies. The Dynamic Spectrum Alliance supports the RSPG's proposed position on 470-694 MHz spectrum and urges support for an agenda item studying secondary use of 5350-5470 MHz spectrum by radio local area networks.

Respectfully submitted,



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