

**Ruckus Wireless Response to the ISED Consultation on the Technical and Policy Framework for Radio Local Area Network Devices Operating in the 5150-5250 MHz Frequency Band**

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Submitted to:

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## Introduction

Ruckus Wireless would like to submit the following responses to the consultation on potential changes to the operational rules for the 5150-5250 MHz Band in Canada.

## About Ruckus Wireless

Beginning operations in June 2004, Ruckus Wireless, Inc. is one of the world's fastest growing wireless technology companies. Ruckus offers a broad range of advanced indoor and outdoor "Smart Wi-Fi" systems for service providers and enterprises. The company is credited with developing the first adaptive antenna (Smart Wi-Fi) technology that improves the reliability, performance and capacity of Wi-Fi networks. Ruckus recently announced its line of "OpenG" LTE products, which bring the simplicity and economics of Wi-Fi to the market for in-building cellular services.

According to Dell'Oro's Q3 2015 report, Ruckus is #1 in the Service Provider Wi-Fi market with 38% marketshare and #3 in the Enterprise Wireless LAN market. With approximately 61,000 end customers and more than 10,000 channel partners worldwide, Ruckus sells its Wi-Fi systems directly to broadband providers and indirectly to enterprise customers through a global network of value-added partners.

Ruckus Wireless is a Brocade Communications Company.

## Responses to the Consultation

Comments on:

### **A. the demand for and benefit, if any, of allowing HPODs in the 5150-5250 MHz frequency band before WRC-19.**

1. There is significant demand for HPODs in the 5150-5250 MHz band, as shown by:
  - The latest generation Wi-Fi technology (802.11ac) operates exclusively in the 5 GHz spectrum band and includes options for much wider channels in 5 GHz than previous generations. This is creating additional demand for use of the 5 GHz spectrum, both indoor and outdoor.
  - In the year and a half after the US FCC allowed outdoor and higher power usage in the 5150-5250 MHz range (from March 2014 thru August 2015), nearly 900 devices had been certified for outdoor operation in the band. This is the latest data that we have access to, and we estimate that this number is now much larger.
  - The cellular industry has recently introduced specifications for LTE operation in unlicensed spectrum (3GPP Release 13 LTE-Licensed Assisted Access or LTE-LAA). Mobile operator comments made throughout the standardization process have

indicated the preference to utilize unlicensed spectrum in the 5 GHz band that allows outdoor and higher power use, and does not require radar detection (DFS). Today in Canada, this would mean that they would focus on the 5725-5825 MHz band, which is also preferred by Wi-Fi operators for the same reasons. Opening 5150-5250 for HPOD operation would alleviate some of the anticipated congestion likely to occur in 5725-5825 with the arrival of LTE-LAA.

2. There would be a number of technical and economic benefits to allowing HPODs in the 5150-5250 MHz band as soon as practical. These include:
  - Almost doubling the amount of 5 GHz spectrum that is available for higher power, outdoor usage without a radar detection (DFS) requirement. Wi-Fi channels in spectrum with these characteristics are optimal for outdoor deployment by service providers and private Wi-Fi operators due to the increased coverage and/or data rates. Wi-Fi channels requiring DFS are not preferred as a significant percentage of client devices do not support these channels, and they are also subject to disruption by radar activity.
  - As noted above, the mobile industry is also seeking to utilize the 5725-5825 MHz range for LTE-LAA operation (because it does not require DFS). Opening 5150-5250 to higher power and outdoor use will alleviate some of the congestion that may occur in 5725-5825 with the introduction of LTE-LAA services. The availability of Wi-Fi outdoors and at higher powers is necessary to support competitive wireless access in public spaces (e.g. airports, shopping centers, urban corridors, etc...) to the benefit of Canadian citizens and consumers.
  - Enabling the use of larger channel bandwidths supported by the latest generation of Wi-Fi technology (802.11ac channels at 2x80 MHz and 1x160 MHz) when coupled with the contiguous block of spectrum from 5250-5350 MHz. This is especially important as citizens and consumers look to leverage the full capacity of next generation fixed broadband connections (both in home and in public spaces) such as DOCSIS 3.1 and Fiber-to-the-Home/Premises. The only way to realize Wi-Fi data rates of 1 Gbps or greater is via these wider channels.
  - Alignment of the technical rules for the 5150-5250 MHz band with the United States would result in both greater availability (with resulting lower costs) and faster availability of new equipment. As noted above, a large number of devices have already been certified for 5150-5250 MHz outdoor use in the United States. These devices would almost immediately be available to the Canadian market with these HPOD authorizations.

**B. the potential impacts on domestic and foreign satellite systems in the 5150-5250 MHz frequency band of authorizing HPODs use prior to WRC-19 on the basis of a maximum e.i.r.p. of 4 W. Requirements for an elevation mask towards satellites and an exclusion zone of 25 km around receiving earth stations to protect all satellite systems would likely also apply.**

To our knowledge, there have been no allegations of harmful interference made to the United States FCC from the satellite industry resulting from the rule changes in March

2014 allowing for EIRPs of up to 4 Watts and outdoor deployments with the 125 mW emission restriction above a 30 degree elevation angle. We believe this demonstrates how effective these rules have been in protecting the incumbent satellite services.

If ISED implement similar technical rules as the FCC in the 5150-5250 MHz band, we believe there should be no discernable impacts to the domestic and foreign satellite services currently operating in the band.

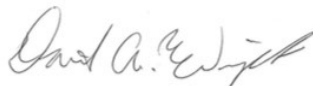
**C. should the Department proceed to authorize HPODs use prior to WRC-19, what regulatory approach would best ensure a balance of timely deployment and the protection of other existing and future services in the 5150-5250 MHz frequency band? Also, indicate any and all considerations that should be given to equipment standards, technical requirements, eligibility criteria and/or conditions of licence depending on the relevant approach.**

ISED should authorize HPODs, with the appropriate technical rules, in the 5150-5250 MHz band in advance of the WRC-19 deliberations and determinations. Delaying a decision until after WRC-19 will deprive Canadian citizens of the technical and economic benefits previously outlined for at least a number of years. Other National Regulatory Authorities, including Ofcom in the UK, are similarly considering rule changes in the 5 GHz license exempt bands in advance of WRC-19.

In terms of the two approaches that ISED mentioned for authorizing HPODs in the 5150-5250 MHz band, either 1) amending the Radiocommunication Regulations or 2) requiring a license or registration to operate HPODs, Ruckus would advocate for the approach that will provide the fastest path towards HPOD deployments in the band. In the event that a licensing/registration approach is implemented with the goal of providing a recourse in the event of harmful interference to a satellite operator, it could ease the administrative burden for both ISED and the users to require the license/registration only when certain deployment conditions were met (e.g. outdoor deployments of greater than a certain number of Access Points).

Thank you for considering our comments on these questions and please let us know if you have any questions.

Respectfully Submitted,



David Wright  
Director, Regulatory Affairs & Network Standards