

February 15, 2018

Engineering, Planning and Standards Branch  
Innovation, Science Economic Development Canada  
235 Queen Street  
Ottawa, Ontario K1A 0H5

RE: Internet Society (ISOC) and Association for Progressive Communications (APC) Response to Innovation, Science and Economic Development's (ISED) Consultation on the Technical and Policy Framework for White Space Devices, SMSE-018-17 (<http://www.ic.gc.ca/eic/site/smt-gst.nsf/eng/sf11343.html>)

## **1. Introduction**

### **1.1 About the Internet Society**

The Internet Society is a global not-for-profit organization committed to making the Internet available to everyone, everywhere. Working in partnership with our global community, comprised of more than 100,000 individual members, 130 chapters across the world and more than 164 organizational members, the Internet Society provides leadership and expertise on policy, technology and communications matters. The Internet Society is also the organizational home of the Internet Engineering Task Force (IETF) and the Online Trust Alliance (OTA).<sup>1</sup>

### **1.2 About the Association for Progressive Communications**

The Association for Progressive Communications (APC) is an international network of organizations that was founded in 1990 to provide communication infrastructure, including Internet-based applications, to groups and individuals who work for peace, human rights, protection of the environment, and sustainability. Pioneering the use of ICTs for civil society, especially in developing countries, APC were often the first providers of Internet in their member countries. APC is a worldwide network of social activists who use the internet to make the world a better place. APC is both a network and an organisation. APC members are groups working in their own countries to advance the same mission. APC has 58 organisational members and 28 individual members active in 74 countries, including Canada.<sup>2</sup>

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<sup>1</sup> <https://www.internetsociety.org/>

<sup>2</sup> <https://apc.org>

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### **1.3 Community Wireless Networks**

In 2016, the Canadian Radio-television and Telecommunication Commission (CRTC) ruled that broadband Internet is a basic telecommunication service. The CRTC set the ambitious goal of ensuring 90 per cent of Canadian householders would have access to broadband speeds of 50Mbps download and 10Mbps upload. The unfortunate reality in Canada is that the remaining 10 per cent of Canadians that will be left behind if this goal is achieved are predominantly from rural, remote, and Indigenous communities.

There is a solution to reduce this disparity. Community networks, small, locally owned and operated networks, have proven to be a viable connectivity solution where traditional or commercial networks do not reach, or where it is not economically viable for a private sector entity to operate in a particular region.<sup>3</sup>

However, to be successful, community network operators, among other key factors, require access to adequate and sufficient spectrum. TV White Space (TVWS) technology offers great potential to provide access to necessary spectrum for rural, remote, and Indigenous communities in Canada.

## **2. Comments**

### **2.1 General Comments**

The ecosystem of communication technologies and infrastructure is changing; opening up new possibilities for the delivery of universal service. While we recognise that mobile networks are a critical last-mile access technology, additional complementary options, especially in poorer regions outside of urban areas, should be considered to help connect Canadians.

To truly connect everyone, everywhere, community networks must be recognized as a viable way for the unconnected to connect their communities. This is a paradigm shift where the focus is on allowing communities to actively connect themselves. To achieve this paradigm shift, policy makers and regulators should recognize that connectivity can happen from the “village” or “community” out –

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<sup>3</sup> “Policy Brief: Spectrum Approaches for Community Networks,” Internet Society,  
<https://www.internetsociety.org/policybriefs/spectrum/>

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where the last mile is essentially a “first-mile,” where citizens build their own networks. Community networks are complementary to traditional, commercial telecommunications networks.

TVWS technology operating in sub-1GHz frequencies offer particular potential for rural access in general and community networks in particular. The ability to propagate in non line-of-sight (NLOS) conditions directly addresses access challenges in rural Canada where the Boreal forest often makes the deployment of communication infrastructure challenging or expensive or both.

The comparatively low cost of these technologies, combined with the low barrier to use through the revolutionary use of dynamic spectrum allocation through a geo-location database, means that communities and small ISPs may be able to use these technologies in a similar manner to Wi-Fi technologies which have proven to be a revolution in access throughout the world. TVWS offers tremendous potential to empower communities to solve their own connectivity challenges.

TVWS technology is particularly well-suited for rural and remote access both in terms of its propagation characteristics as well as its cost. As such, Canada has an opportunity to demonstrate leadership in the use of TVWS for community networking. In fact, leadership from Canada in empowering regulations for TVWS can have ripple effects across the world, as less well-resourced countries may look to Canada for leadership in this area. Strong leadership from Canada in this area will also serve as a signal to investors to deepen their commitment to innovative companies in Canada.

## **2.2 Reducing Risk and Empowering Small Operators**

TVWS also represents an excellent risk mitigation strategy for the regulator. TVWS regulation offers short-term, low-risk (to the regulator) use of some of the same spectrum in the TVWS bands, and should be seen as strategically complementary to Canada’s plans for spectrum auctions and be given greater priority than they have to date.

## **2.3 Responses to Specific Questions**

### **2.3.1 VHF channels 3 and 4**

**Q1. ISED’s proposal to harmonize with the U.S. framework regarding the operation of fixed white space devices in channels 3 and 4 (60-72 MHz).**

The Internet Society and APC support ISED collaborating with its U.S. counterparts on this matter.

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### **2.3.2 Harmonisation with FCC regarding personal/portable devices**

#### **Q2. ISED's proposal to harmonize with the U.S. framework regarding the operation of personal/portable white space devices in channels 14 to 20 (470-512 MHz).**

The Internet Society and APC support the harmonisation of policy regarding personal/portable white space devices with the U.S. Federal Communication Commission's.

### **2.3.3 On limiting TVWS to below 608 MHz**

#### **Q3. ISED's proposal to limit the use of white space devices to spectrum below 608 MHz at this time.**

The Internet Society and APC believe that ISED should consider adopting policies related to secondary use of TVWS spectrum for community networks. Secondary-use of these bands may offer potential for rural coverage and potentially represents a risk mitigation strategy for ISED given that the outcome of the 600MHz auction(s).

If TVWS is restricted to below 608 MHz, it will reduce the UHF TVWS spectrum availability to 132Mhz which is less than both the FCC (228 MHz) and OFCOM (254 MHz). Given the rural and remote connectivity challenges that Canada faces, and our vast geogrpahy, ISED has an opportunity to lead in the allocation of this spectrum for secondary-use and innovative connectivity solutions, bearing in mind any interference issues.

Lack of sufficient useable spectrum in TVWS may have a chilling effect on small-scale operators who require some degree of confidence that TVWS will allow them enough spectrum to deliver rural broadband solutions that are consistent with the government's expressed goals. By allowing more use of TVWS, Canadian equipment manufacturers may have more opportunities and assurances to court investment and development.

### **2.3.4 On the use of Channel 37**

#### **Q4. ISED's proposal to continue to preclude the use of channel 37 (608-614 MHz) by white space devices.**

Given the United States and Canada have similar users that operate on channel 37, the regulator should harmonise its rules with the FCC in order to maximise available TVWS spectrum.

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Signed on behalf of ISOC

A handwritten signature in black ink, appearing to be 'MB' followed by a stylized flourish.

Mark Buell

15 February 2018

Signed on behalf of APC

A handwritten signature in black ink, appearing to be 'Carlos Rey-Moreno' with a large, sweeping flourish.

Carlos Rey-Moreno

15 February 2018