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Via email: ic.spectrumengineering-genieduspectre.ic@canada.ca

Senior Director
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Innovation, Science Economic Development Canada
235 Queen St
Ottawa, ON K1A 0H5

Re: Canada Gazette Notice No. SMSE-018-17: Consultation on the Technical and Policy Framework for White Space Devices

Attached, please find the comments of Rogers Communications Canada Inc. (Rogers) in response to *Canada Gazette*, Part I, November 25, 2017, *Consultation on the Technical and Policy Framework for White Space Devices* (SMSE-018-17).

Rogers thanks the Department for the opportunity to provide input on this important issue.

Yours very truly,



Howard Slawner
Vice President – Regulatory Telecom
HS/pg

Attach.

Consultation on the Technical and Policy
Framework for White Space Devices
SMSE-018-17

Comments of
Rogers Communications Canada Inc.
February 15, 2018



Introduction

1. Rogers Communications Canada Inc. (Rogers) is pleased to provide Innovation, Science and Economic Development Canada (ISED or the Department) with the following comments in response to *SMSE-018-17: Consultation on the Technical and Policy Framework for White Space Devices*¹ (the Consultation), published in the *Canada Gazette*, Part I, November 25, 2017.
2. The Department should look to maximize the use of white space spectrum while ensuring adequate and reasonable protection of incumbent services, in order to enable greater spectrum utilization and allow Canadian consumers to benefit from wireless innovations. As ISED states, white space devices (WSDs) may have some role to play in the provision of wireless broadband Internet service in deep rural and remote areas that are difficult to reach with other solutions,² areas that have historically been challenging and uneconomic to serve by traditional network operators. Creating effective spectrum frameworks and harmonizing policy wherever possible with regional and global ecosystems, especially those of the United States (U.S.), to ensure economies of scale and minimize cross-border interference issues, are important to supporting new digital technologies and services that will help achieve the Department's objective of positioning Canada at the leading edge of the digital economy.
3. However, while the practical experience obtained from the use of white space technology may one day help facilitate the development of future dynamic spectrum access technologies, it cannot replace making additional exclusively licensed spectrum available to facilities-based network operators as rapidly as possible using a technology-neutral approach. The ability of WSDs to access white space spectrum must also be balanced with the need to ensure incumbent services are adequately protected, especially Canadian over-the-air (OTA) television broadcasters and the spectrum they require to produce content.
4. ISED's white space spectrum policies must therefore carefully consider the Canadian OTA television broadcasters who are being displaced and relocated into other bands as part of the Department's repurposing of the 600 MHz band. Local television is a foundational element of the Canadian broadcasting system, which provides significant value and is a low-cost means for access to television, in rural and urban markets across Canada. As recently as 2011, these broadcasters were required to incur substantial costs to transition from analog to digital technology and to implement the current digital television (DTV) allotment plan, including the

¹ ISED, *SMSE-018-17: Consultation on the Technical and Policy Framework for White Space Devices* (Consultation); <http://www.ic.gc.ca/eic/site/smt-gst.nsf/eng/sf11343.html>.

² ISED, *Consultation*, para 9.

replacement of low-power apparatus (LPA), such as wireless cameras and microphones. These investments have not been fully depreciated.

5. The Department's new DTV allotment plan that incorporates the 600 MHz repacking process affects virtually all OTA broadcasters and their equipment, meaning that these companies will be required to incur additional substantial costs above and beyond those that they have already incurred to implement the current allotment plan. However, systemic changes in local OTA television's business model pose a significant challenge to the sector's financial health. The Government should cover the costs incurred by local television stations to vacate the 600 MHz spectrum in order to accommodate the plan to re-allocate the spectrum, including any required modifications to, or purchase of, new LPAs.
6. Further, it should be highlighted that LPAs serve a mission-critical role in television and radio broadcasting and in live performance industries. LPAs should continue to have the option of operating in a licence-exempt manner on a no-protection, no-interference basis, or voluntarily applying for a licence in exchange for more assured interference protection from WSDs. It is too early in the 600 MHz reallocation process to know all of the technical implications that will result from this television densification program and there is little to no practical knowledge on the real world working requirements of the next generation Advanced Television Systems Committee (ATSC) 3 standards. Any authorization of WSDs must continue to be on a secondary basis to LPA use and the Department should not hesitate to place a moratorium on WSDs should incumbent services receive any interference whatsoever from WSDs.
7. The remainder of Rogers' comments will respond to the specific issues raised in the Consultation.

Q1. ISED is seeking comments on its proposal to harmonize with the U.S. framework regarding the operation of fixed white space devices in channels 3 and 4 (60-72 MHz).

In providing comments, respondents are requested to include supporting arguments and rationale.

8. Rogers supports the Department's proposal to harmonize with the U.S. framework regarding the operation of fixed WSDs in channels 3 and 4 (60-72 MHz). As the Department states, "this would allow additional white space spectrum to be used in the future for the provision of fixed services, including broadband to rural and remote regions of Canada. The risk of interference is low and will be further mitigated due to

the time it will take for white space equipment to be available for these channels.”³ Although there is some risk that WSDs will interfere with consumer electronics operating in these channels, we agree with ISED’s assertion that this will be mitigated and, in our view, the potential benefits to Canadians outweighs this risk. Additionally, there is a substantial benefit to aligning Canadian regulations with U.S. regulations in order that Canadians can take advantage of the anticipated ecosystem of WSDs designed for the U.S. market.

9. However, Rogers also emphasizes that any WSD use of channels 3 and 4 should continue to be secondary to the use of wireless broadcast devices, such as, but not limited to, wireless microphones and cameras. The frequencies of 54-72, 76-88, 174-216, and 470-608 MHz are television (TV) channels below Channel 37. Broadcast devices have always been designed to operate within TV channels, therefore these frequencies should remain for priority use by broadcast wireless devices. There is a large burden to equipment manufactures in trying to recoup research and development (R&D) costs in designing technology that is sufficiently frequency agile and cost effective. Allowing manufactures to design around a contained set of frequencies will reduce development costs and increase availability.
10. Although the Department believes that the potential use of TV channels 3 and 4 by WSDs is unlikely to cause broad interference, Rogers has concerns that WSD use in these channels could still affect consumers who use older TVs with analogue service, especially low-income Canadians. As the Department states in the 2012 white spaces framework, WSDs were not allowed to access TV channels 3 and 4 in order “to minimize interference risks to consumer electronic devices, which use these channels to interface and connect to television sets”.⁴ The number of Canadian households potentially impacted by such WSD interference continues to decrease over time but there still remains a significant, if small, amount.
11. As such, Rogers proposes that the Department create a process whereby individuals receiving interference from fixed WSDs in channels 3 and 4 can provide their location to white space database administrators (WSDBAs) in order to receive protection for up to seven years from the Consultation decision. Any costs with such voluntary registration, including any awareness campaigns, should be covered by white space service providers and WSDBAs and not individual Canadians.
12. Rogers notes that Ofcom, the United Kingdom’s spectrum regulator, has looked at Channels 3 and 4 for Narrowband Internet of Things (NB-IOT) technology,⁵ which

³ ISED, *Consultation*, para 21.

⁴ ISED, *Consultation*, para 19.

⁵ Ofcom, *VHF radio spectrum for the Internet of Things*; <https://www.ofcom.org.uk/consultations-and-statements/category-1/radio-spectrum-internet-of-things>.

suggests at least partially portable use cases. We recommend ISED monitor these developments and allow in future portable service should they materialize.

Q2. ISED is seeking comments on its 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).

In providing comments, respondents are requested to include supporting arguments and rationale.

13. As noted above, Rogers supports ISED harmonizing spectrum policy wherever possible with regional and global ecosystems, especially those of the U.S., to ensure economies of scale and minimize cross-border interference issues. As such, we agree with Department's proposal to harmonize with the U.S. framework regarding personal/portable WSDs in channels 14 to 20 (470-512 MHz) in order to help improve the white space equipment ecosystem in Canada.

14. However, Rogers again emphasizes that any WSD use of channels 14 to 20 should continue to be secondary to the use of any LPAs used as wireless broadcast devices or for live performances. Broadcast devices have always been designed to operate within TV channels, including 470-512 MHz, and therefore these frequencies should remain for priority use by broadcast wireless devices. As such, the Department should not hesitate to place a moratorium on WSDs should incumbent services receive any interference whatsoever from WSDs.

Q3. ISED is seeking comments regarding its proposal to limit the use of white space devices to spectrum below 608 MHz at this time.

In providing comments, respondents are requested to include supporting arguments and rationale.

15. Rogers supports ISED's proposal to limit the use of WSDs to spectrum below 608 MHz. Particularly, the Department should refrain from granting any use of WSDs in any portion of the 600 MHz duplex gap (652-663 MHz) or guard band until there is substantial evidence showing there will be no risk to licensed users in the 600 MHz band. It is far too early in the 600 MHz reallocation process to provide access to WSDs in a band that is critical to the Department's goals to foster both innovation and competition in the mobile wireless market.

16. Low band spectrum, such as the 600 MHz spectrum, is particularly important to facilities-based mobile wireless operators, as its propagation qualities will allow for ubiquitous coverage, covering long distances in rural regions, and better penetrating buildings in urban areas. We believe that the 617-698 MHz band will be a very important band for commercial mobile services going forward and should be protected from interference from WSDs. This band has already been auctioned and is being deployed in the U.S., which will drive the development of an ecosystem of base stations and mobile devices that could be used in Canada. The standards development organization Third Generation Partnership Project (3GPP) is developing technical standards for both 4th generation (4G) and 5th generation (5G) radio access technologies for this band, which will ensure that the band is supported in a wide range of mobile devices in the Canadian market.
17. Rogers also recommends that ISED carefully monitor the impact of WSDs on Canadian OTA broadcasters as television stations are transitioned to frequencies below 602 MHz. While the Department states, “the availability of spectrum below 608 MHz will be more stable in terms of spectrum for use by white space devices, since the DTV transition plan and schedule have already been published”,⁶ there remains significant room for concern and unknowns regarding all of the technical implications with this TV densification program. Further, there is little to no practical knowledge on the real world working requirements of next-generation OTA television standards such as ATSC 3. All of these factors could result in a highly congested and contested radio environment for OTA broadcasters, as well as the live performance industries. Any authorization of WSDs must continue to be on a secondary basis and the Department should not hesitate to place a moratorium on WSDs should incumbent services receive any interference whatsoever from WSDs.
18. However, it is unreasonable for the Department to expect television broadcasters, Broadcasting Distribution Unit operators, and LPA users to monitor and report harmful interference associated with WSDs. Instead, Rogers believes that early detection and device recall through proactive market surveillance is required to prevent or stop the distribution of non-compliant WSD to the consumer marketplace.
19. To further enforce technical standards and operating parameters, and to prevent a non-compliant WSDs from entering the marketplace, Rogers recommends that the Department conduct market surveillance in the form of periodic sampling and testing of WSDs obtained at retail outlets in order to proactively detect products that do not comply with established technical standards and operating parameters. Early detection will limit the distribution of any offending WSDs and will thereby result in less interference than would otherwise result. Absent early-detection efforts, it will be

⁶ ISED, *Consultation*, para 29.

extremely difficult to recall thousands of non-compliant WSDs from the consumer marketplace.

Q4. ISED is seeking comments on its proposal to continue to preclude the use of channel 37 (608-614 MHz) by white space devices.

In providing comments, respondents are requested to include supporting arguments and rationale.

20. Rogers supports the Department's proposal to continue to preclude the use of channel 37 (608-614 MHz) by WSDs. We agree with ISED's assessment that white space technology is still at much too early of a stage in Canada (or anywhere) and that the risks and challenges that WSDs could pose to the incumbent Radio Astrophysical and Medical Telemetry services means the use of channel 37 by WSDs should not be permitted.⁷ We also agree that establishing a registration regime would be a burden to these users and is not justified given the relatively small amount of spectrum that would be made available.

21. Further, should international trends and developments regarding the potential use of WSDs in channel 37 change in the future, the Department should consider the impacts caused to incumbent services and determine if WSD producers and service providers should be financially responsible to compensate incumbent users for any and all impacts caused by the introduction of WSDs to 608-614 MHz.

22. Rogers thanks the Department for the opportunity to share its views and participate in this consultation process.

⁷ ISED, *Consultation*, para 36.