

May 23, 2017

Ms. Magdoly Rondon,
Telecommunications Engineer, Engineering, Planning and Standards Branch
Spectrum, Information Technologies and Telecommunications Sector,
Innovation, Science and Economic Development Canada
(Submitted by email)

Dear Ms. Rondon,

Re: Input to 6 & 11 GHz SRSPs

As agreed during the November 3, 2016 RABC Fixed Wireless Committee meeting, the RABC created a working group lead by Doug Davis to review 6 & 11 GHz activity. The mandate of the working group was to review SRSP-306.4 "Technical Requirements for Fixed Line-of-Sight Radio Systems Operating in the Band 5925-6425 MHz" and SRSP-310.7 "Technical Requirements for Fixed Line-of-Sight Radio Systems Operating in the Band 10.7-11.7 GHz", in view of providing technical feedback to ISED on the possible harmonisation with the U.S., as well as the potential proposals to increase fixed service link transport capacity in those frequency ranges.

Several working group meetings were held to discuss 6 & 11 GHz activity, to review the draft SRSP-310.7 Issue 4 March 2017 (which you provided), review the existing SRSP-305.9 Issue 5, and to review modeling results of various antenna characteristics in relation to possible modifications the technical requirements for fixed systems operating in the 6 & 11 GHz bands. The ODYSSEE document was also introduced for discussion.

The following is the working group's input to the SRSPs and its recommendations for the band.

With reference to draft SRSP-310.7 Issue 4 (11 GHz):

- We are in favour of adding 80 MHz RF channel capability outside of congested areas in harmonization with the FCC 11 GHz plan.
- We are in favour of adding 60 MHz RF channel capability in harmonization with the FCC 11 GHz channelling plan outside of congested areas to provide for more flexibility in the band.
- Larger channels already have the penalty of reduced system gain. Higher spectral efficiency requirements for larger channels would either further reduce the distances that could be spanned by forcing higher modulations or by forcing larger antenna sizes

with increased support infrastructure. For the new channel capability, we recommend keeping the same spectrum efficiency as for the 40 MHz RF channel. We suggest maintaining the current spectral efficiency text in 11 GHz, where minimum required spectral efficiency is 3 bps/Hz with a constraint of 4.4 bps/Hz in congested areas which would apply to all RF channel bandwidths.

- We support the proposed text to explicitly require user's justification of wanting a 80 MHz RF channel link instead of a 40 MHz RF channel link with CCDP. In cases where it is not feasible to use the higher RF channel bandwidth, we suggest for maximum flexibility to include the proposed text below (taken from section 4.1.7 of SRSP-325.25) allowing use of RF channel aggregation:
 - *Upon reasonable justification, the department may consider, on a case-by-case basis, requests to combine two adjacent frequency channels to form a single larger frequency channel as an alternative to the use of a single frequency channel (for example, using two 40 MHz RF channels instead of one 80 MHz RF channel). In such cases, the combined frequency channel must meet all requirements of this SRSP.*
- Therefore the various channel bandwidths available would be 20 MHz, 30 MHz, 40 MHz, 60 MHz and 80 MHz. The channel arrangements for 60 MHz would be matching with the 30 MHz but with the two channels combined into one channel. The centre frequency would be at the midpoint between the two 30 MHz channels it replaced.
- We agree with the wording of 6(c) and support the use of CCDP. We submitted antenna marks for ETSI class 3 and FCC. In general, we would like to harmonize with one of those standards to benefit from economies of scale (no Canadian specific requirements), and benefit from the possibility of deploying smaller antennas. With the current requirements spectrum users would require at least 1.8 metre/6 foot antenna in high performance or 1.2 metre/4 foot antenna in Ultra high performance to meet Category A. If we can't harmonize Category A with the FCC pattern A, then at the minimum ISED should relax mask B harmonizing with FCC pattern B. We suggest that spectrum users be consulted to provide their inputs on the need for smaller antennas.
- Spectral efficiency of at least 4.4 bps/Hz means a minimum of 64 QAM. The use of 64 QAM is quite common for 40 MHz and 11 GHz. In Adaptive Modulation mode the spectral efficiency should be allowed to drop temporarily. We agree with the changes to section 8 and the wording is clear.

With reference to SRPS-305.9 Issue 5 (6 GHz)

- We are in favour of adding 60 MHz RF channel capability in harmonization with the FCC 6 GHz channeling plan outside of congested areas
- For the new channel capability, we recommend keeping the same spectrum efficiency as for the 30 MHz RF channel. We suggest maintaining the current spectral efficiency text in L6 GHz, where minimal required spectral efficiency is 4.4 bps/Hz which would apply to all RF channel bandwidths.
- The following text (section 4.1.7 of SRSP-325.25) is proposed:

- *Upon reasonable justification, the Department may consider, on a case-by-case basis, requests to combine two adjacent frequency channels to form a single larger frequency channel as an alternative to the use of a single frequency channel (for example, using two 30 MHz RF channels instead of one 60 MHz RF channel). In such cases, the combined frequency channel must meet all requirements of this SRSP.*

With regards to the ODYSSEE document, we are in favour of maintaining the 3db tolerance.

The RABC and its members appreciate the opportunity to provide input to these SRSPs. We found the working group discussion to be very helpful.

Regards,



J. David Farnes
General Manager