



RADIO ADVISORY
BOARD OF CANADA

CONSEIL CONSULTATIF
CANADIEN DE LA RADIO

Risk of Potential Adverse Effects on Radio Altimeters

Briefing to ATAC
November 17, 2021



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A Unique Organization

- Government/Spectrum Stakeholders partnership
- Members represent most stakeholders – manufacturers, terrestrial and satellite wireless carriers and service providers, network operators, broadcasters, public safety and national security radio network operators, and users
- Operating Model – Association of Associations
- 77 years young – founded in 1944
- Committed to the growth of radiocommunications in Canada



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RABC Contribution

- RABC plays a very important role in a well-functioning Canadian radiocommunications environment
- Advisor to Innovation Science & Economic Development Canada (ISED) - standards, guidelines, regulations and policies play a key role in ensuring that radiocommunications networks, devices and equipment works as intended and that interference to services is minimized or non-existent



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Our Work

- Provide timely, accurate and broadly-based expert advice on the management and use of radio spectrum to the Canadian Government – Innovation, Science and Economic Development
- Offer informed technical non-partisan advice to Government
- Primary focus is domestic, rather than international
- Not lobbyists

The RABC is Industry Canada's most relevant source of expert, technical consensus advice on radio spectrum issues regarding the development of technical standards and related regulatory matters.

Evaluation of the Radio Advisory Board of Canada Grant Program – February 2015



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The Issue

- There is preliminary evidence that radio altimeters, which are used on aircraft, operating in 4200-4400 MHz band to aid in aeronautical navigation, may be susceptible to harmful interference from flexible use broadband operations in the 3450-3650 MHz band (3500 MHz band) under certain conditions
- Radio altimeters are critical sensors for automatic flight guidance systems
- ISED recently auctioned licences for 3500 MHz mobile/5G systems in Canada - \$9 billion raised



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Canadian Developments

- ISED Bulletin: SAB-001-21 — Radio Altimeters and Technical Rules in the 3450-3650 MHz Band (3500 MHz Band), March 26, 2021
- Transport Canada Alert: CASA No. 2021-08, June 15, 2021
- 3500 MHz Auction – began June 15, 2021; and ended July 2, 2021
- ISED Consultation on Amendments to SRSP-520, Technical Requirements for Fixed and/or Mobile Systems, Including Flexible Use Broadband Systems, in the Band 3450-3650 MHz, August 17, 2021; and Addendum Consultation, Sept. 22, 2021



Canadian Developments (2)

- 3500 MHz licenses should have been awarded by now, but ISED has delayed issuance
- SRSP-520 proposes restrictions on 3500 MHz systems
 - use of exclusion and protection zones to mitigate interference to aircrafts around certain runways. The runways identified are those where automated landing is authorized, based on advice from Transport Canada
 - power flux density (pfd) limit for protection zones



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Canadian Developments (3)

- SRSP-520 proposes restrictions on 3500 MHz systems
 - national antenna down-tilt requirement for 5G base stations (to protect radio altimeters in use on helicopters); air ambulance/search & rescue operations could occur anywhere (not just at airports)
- Consultation on SRSP-520 is closed; awaiting publication of new rules
- New RABC working group to study issue



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International Developments

- Proposed Canadian rules (SRSP-520) consider regulations and technical studies in other countries
 - France's Agence Nationale des Fréquences
 - October 2020 Radio Technical Commission for Aeronautics (RTCA) report
 - the 2019 and 2020 studies from Aerospace Vehicle Systems Institute (AVSI)
 - a study conducted by the aircraft manufacturer ATR
 - UK, Australia, Japan, US



US Developments

- C-band spectrum licenses in the 3.7-3.98 GHz range concludes February 2021 (\$81.2 billion)
- FAA Special Airworthiness Bulletin AIR-21-18 (November 2, 2021)
 - SAIB recommends that radio altimeter manufacturers, aircraft manufacturers, and operators voluntarily provide to federal authorities specific information related to altimeter design and functionality, specifics on deployment and usage of radio altimeters in aircraft, and that they test and assess their equipment in conjunction with federal authorities



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US Developments (2)

- FAA and the Federal Communications Commission (FCC) said in a joint statement: "Today Verizon and AT&T announced that they will voluntarily pause commercial launch of C-band wireless service to further assess any impact on aviation safety technologies..."
November 4, 2021
 - Deployments deferred until January 2022



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Next Steps

- ISED publication of SRSP-520, Issue 2
- Anticipate more studies – especially from the US as FAA gathers information
- RABC Working Group to study issue and provide recommendations to ISED
 - Call for volunteer guest participants
- Potential further modifications to SRSP-520; what restrictions are required on 3500 MHz systems to protect radio altimeters? (medium term)
- 3800 MHz Spectrum Auction (2023?)
- Potential changes to standards for radio altimeters (long term)



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RABC Working Group

- ATAC
- Airbus
- ALPA
- Boeing
- Bombardier
- CBAA
- Collins Aerospace
- MITRE Corp
- Helicopter Association (TBC)
- ISED
- Transport Canada
- RABC Members (next slide)

Please contact me to join the group.



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RABC Membership

- American Home Appliance Manufacturers
- Bell Telecom Group
- Canadian Association of Broadcasters
- Canadian Association of Chiefs of Police
- Canadian Association of Broadcast Consultants
- CBC/Radio Canada
- Canadian Electricity Association
- Canadian Electronics and Communications Association
- Canadian Satellite and Space Industry Forum
- Canadian Wireless Internet Service Providers
- Canadian Wireless Telecommunications Association
- Department of National Defence
- Global Automakers of Canada
- Government of Ontario
- Model Aeronautics Association of Canada
- Nav Canada
- Radio Amateurs of Canada
- Railway Association of Canada
- Rogers Communications
- RCMP
- TELUS

We are looking for new members!



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Some links

- <https://tc.canada.ca/en/aviation/reference-centre/civil-aviation-safety-alerts/potential-risk-interference-5g-signals-radio-altimeter-civil-aviation-safety-alert-casa-no-2021-08>
- [https://rgl.faa.gov/Regulatory and Guidance Library/rgSAIB.nsf/dc7bd4f27e5f107486257221005f069d/27ffcb b45e6157e9862587810044ad19/\\$FILE/AIR-21-18.pdf](https://rgl.faa.gov/Regulatory%20and%20Guidance%20Library/rgSAIB.nsf/dc7bd4f27e5f107486257221005f069d/27ffcb%20b45e6157e9862587810044ad19/$FILE/AIR-21-18.pdf)
- https://www.ic.gc.ca/eic/site/smt-gst.nsf/eng/h_sf11519.html
- <https://www.ic.gc.ca/eic/site/smt-gst.nsf/eng/sf11725.html>
- <https://www.ic.gc.ca/eic/site/smt-gst.nsf/eng/sf11736.html> (includes links to studies)
- <https://www.fiercewireless.com/operators/at-t-verizon-postpone-c-band-rollouts-until-air-safety-review>