



VIA E-MAIL

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Innovation, Science and Economic Development Canada
c/o Senior Director, Spectrum Planning and Engineering
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**Re: Canada Gazette Notice SMSE-014-20
Consultation on the Technical and Policy Framework
for Licence-Exempt Use in the 6 GHz Band**

Inmarsat Solutions (Canada) Inc. (“Inmarsat”) appreciates the opportunity to comment on the *Consultation on the Technical and Policy Framework for Licence-Exempt Use in the 6 GHz Band*, Canada Gazette Notice No. SMSE-014-20 (the “Consultation”). Inmarsat operates C-band feeder links and telemetry, tracking, and command (“TT&C”) functions in the fixed-satellite service (“FSS”) that are critical to support mobile-satellite service (“MSS”) operations in Canada and across the Americas.

Inmarsat operates a global satellite communications system of 13 geostationary orbit (“GSO”) space stations offering diverse services in the L-, S-, and Ka-bands. Inmarsat’s global L-band satellites provide a plethora of services, which support critical requirements such as the electrical grid, utilities, telehealth, e-banking, agriculture, military and security, as well as safety of life. In Canada, this includes supporting the Canadian Government in protecting its borders, its oceans, and its environment, among other things. Key to these communications links is access to C-band spectrum for feeder links and TT&C operations. Specifically, Inmarsat’s C-band earth station located in Weir, Quebec, supports Inmarsat’s L-band MSS services in Canada and across the Americas via the Inmarsat-4 F3 space station at the 98° West Longitude orbital location.¹

In these comments, Inmarsat focuses on the questions raised by ISED in the Consultation, and addresses particular questions below.

Q2

ISED is seeking comments on its proposals to allow licence-exempt RLAN use in the 5925-7125 MHz band.

A: Inmarsat does not object to license-exempt RLAN use in the 5925-7125 MHz band provided that adequate measures are in place to protect the primary FSS in the band.

¹ Note that this earth station site also is the redundant backup required for critical services, and particularly safety of life services. The other earth station providing feeder links for Inmarsat-4 F3 is located in Paumalu, Hawaii, in the United States. See FCC Radio Station Authorization, Call Sign E080059.

Q4

ISED is seeking comments on the proposed rules for standard-power RLANs:

- a. indoor and outdoor operation would be permitted
- b. RLAN access points would only be permitted to operate under the control of an AFC system in the 5925-6875 MHz frequency range
- c. maximum permitted e.i.r.p. would be 36 dBm
- d. maximum permitted power spectral density would be limited to 23 dBm/MHz
- e. use of a vertical elevation mask, with a maximum e.i.r.p. of 125 mW at elevation angles above 30 degrees over the horizon, would be required

A: Inmarsat urges Canada to limit licence-exempt RLANs in this band to indoor only applications at power levels no greater than those adopted by the European Union (EU)/CEPT in the 5925-7125 MHz frequency range.

Inmarsat notes that the proposed power maximum of 36 dBm is higher than the level adopted in the EU ECC Decision (20)01 allows indoor-only devices with an e.i.r.p. of no more than 23 dBm and a maximum e.i.r.p. density of 10 dBm/MHz.² This concerns Inmarsat as there is no means to ensure that consumers will operate the devices only indoors, as intended.

Q5

ISED is seeking comments on allowing access to the additional 100 MHz of spectrum in the 6425-6525 MHz sub-band for standard-power operation.

A: Inmarsat uses spectrum in the 6425-6525 MHz band at its Weir, Quebec, earth station to provide feeder links within its L-band MSS network, through its Inmarsat 4-F3 and Inmarsat 3-F5 satellites. Inmarsat would prefer that the access described not be allowed, given the proposal to authorize RLANs throughout the rest of the 5925-7125 MHz range.

Q7

ISED is seeking comments on the proposed rules for low-power indoor-only RLANs:

- a. operation would be permitted indoor only across the 5925-7125 MHz band
- b. the use of a contention-based protocol (e.g. listen-before-talk) would be required
- c. maximum permitted e.i.r.p. would be 30 dBm
- d. maximum permitted power spectral density would be limited to 5 dBm/MHz

A: Inmarsat urges Canada to limit licence-exempt RLANs in this band to indoor operation at the e.i.r.p. levels adopted in EU Decision (20)01, as discussed in the answer to Question 4 above.

Q8

ISED is seeking comments on the proposed rules for low-power indoor-only RLANs:

- a. operation would be permitted indoors and outdoors across the 5925-7125 MHz band
- b. the use of a contention-based protocol (e.g. listen-before-talk) would be required

² ECC Decision (20)01, Annex 1, table 1 (*available at* <https://docdb.cept.org/document/16737>).

- c. maximum permitted e.i.r.p. would be 14 dBm
- d. maximum permitted power spectral density would be limited to -8 dBm/MHz

A: RLANs that operate outdoors, or at high-power, will disrupt satellite operations in the 5925-7125 MHz band. The long-term impact of deployment of high-power devices will depend on factors that are difficult to predict or mitigate, both in Canada and in other jurisdictions within the region, as Inmarsat's satellites will receive signals from any country or region within their uplink beams.

If the ISED should determine that local area radio networks (RLANs) operating in outdoor environments are to be introduced in this range, only very low power should be permitted to minimize the potential for harmful interference to existing and future FSS operations. If very low power outdoor devices are allowed, ISED's proposed maximum EIRP and EIRP density will be necessary to protect Inmarsat's FSS uplinks.

Q9

ISED is seeking comments on potential business models for AFC administrators to operate their AFC systems in Canada.

Q10

ISED is seeking comments on its proposal to permit the approval of multiple, third party AFC systems, taking into account the potential for the development of a sustainable market for AFC systems in Canada.

Q12

ISED is seeking comments on adopting an AFC system model that is harmonized to the maximum extent possible with the AFC system model being implemented in the U.S. and other international markets.

A: Noting Inmarsat's opposition to outdoor use of the 5925-7125 GHz band by RLANs, databases and/or database operators must communicate with each other to account for aggregate emissions. As Inmarsat satellites have a regional and international footprint, the databases and/or database operators in multiple countries, including the United States, must communicate to adequately account for potential interference from multiple devices.

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