



Unmanned Systems
Systèmes Télécommandés

CANADA

Unmanned Systems Canada Draft Opinions Regarding the Transport Canada NPA on UAVs

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What follows in this short document, is a draft summary of opinions of Unmanned Systems Canada regarding the material in the NPA and the specific areas where Transport Canada has requested feedback. It is presented at this point so that the reader can form their own opinions and provide them back to both TC and USC.

Note: This document should be considered as a ‘living document’ and will be subject to updates until the NPA closes at the end of August 28 2015. Please take note of the version number and date, as the opinions and comments are likely to change as more information regarding the NPA becomes available.

- 1. Applicability – USC applauds the decision to alter the definitions so that all Small RPAS, regardless of why they are being flown, are covered by the same regulation.** If the operator chooses to conform to an operation model consistent with “model aviation”, such as those defined by MAAC guidelines, they should be treated in one fashion, if, on the other hand, they wish to operate in a less constrained manner, they have more criteria to comply with.
- 2. Approach for Model Aircraft - USC believes that recognizing specific organizations such as MAAC, as providing the operational model for model aviation is the better option,** as it reflects the opinion stated above.
- 3. Approach for recreational/private operation of RPAS outside of MAAC guidelines – USC believes that the regulation should clearly state that all operators of an RPAS fall within the overall regulatory requirement.** It is believed that this may be achieved through insertion of a paragraph at the beginning of each operational category (Complex Operations, Limited Operations, and Lower Threshold) identifying that the regulations apply to recreational/private operators and pointing to any areas where regulations for them may differ from those of commercial operators such as organizational structures and possibly differences in age for pilot permits (private) versus pilot permit (commercial).
- 4. Operator Certificate Requirements:** It is the opinion of USC that **companies operating RPAS should have a minimum operational structure**, including a clear identification of who in the company is ultimately responsible for the operation, clear training requirements and procedures for the continued safe operation and maintenance of the RPAS. It is believed that conformance to these requirements could be achieved in a relatively straightforward and simple manner, especially for very small companies. Conformance should not be a function of how many people are in the company, but rather all of the functions of an operator should be covered off, regardless of company size, operation or staffing. This being said, the level of detail in a given company’s description should be commensurate with its size and complexity.

5. **RPAS Pilot Knowledge:** it is USC's opinion that the material found in **TP15263E should be applicable to Small RPAS Pilots for both Limited and Complex operations**. This report was developed precisely to define the level of detail implied by the rough list of knowledge areas that are provided in the NPA.
6. **Flight and Pilot Training** – While USC agrees that **TC should not certify training organizations, a standardized test, administered in a standardized manner is required** to ensure that the pilot candidates have the knowledge that has been specified.
7. **Definition of Built-Up Areas** – Significant debate and uncertainty has arisen from the failure of Transport Canada to develop a reasonable, risk-based definition of a built-up area. Unmanned Systems Canada proposes that **TC adopt the definition of built-up areas** that is in place for the province of Ontario, namely:

“An area is considered Built-Up when linear frequencies of structures are above 10 per 500 metres or 4 per 1 hectare”

(Source: LIO SOLRIS product -

<https://www.javacoeapp.lrc.gov.on.ca/geonetwork/srv/en/metadata.show?uuid=4cd61e41-ff57-42db-8075-67fd87ad91e0&currTab=simple>)

8. **Operational Rules for Small RPAS (Limited Operation) – Minimum Distance From Aerodromes-** Unmanned Systems Canada believes that this class should be prevented from entering any controlled airspace unless prior approval is granted by ATC. Given the extremely wide spread distribution of aerodromes in Canada, coupled with the geometry of a typical 3 degree approach and or departure path, all manned aircraft using the aerodrome will be above 300 feet in 1.7 km. **A 3 km distance around an aerodrome** is more than sufficient to prevent conflict between manned and unmanned aircraft, and this neglects the fact that the small RPAS pilot is responsible for see and avoid!
9. **Limited versus Complex Operation RPAS: The difference between Small RPAS (Limited Operations) and Small RPAS (Complex Operations) is believed to be far too small!** Both RPAS have approximately the same level of airworthiness requirements, including conformance to a design standard, yet the limited operations pilot, due to a slightly reduced level of oversight (no permit and only basic knowledge testing) has very severe limitations on the operational ability – It is USC's opinion that:
 - **the design standard for Limited Operation RPAS should be significantly reduced in complexity** from the Complex Operation design standard
 - **the maximum altitude for Complex Operations should be increased to 1000 ft.** to reflect that conformance with the standard greatly reduces the risk of RPA “Fly-away”. (Additionally, a higher altitude limit provides additional safety when flying over people) – it is believed that 1000 ft. is still an appropriate level for pilot and/or observer based sense and avoid, but at altitudes above this, the capability becomes questionable.

10. Low Threshold RPAS: This class of RPAS stemmed from the original recommendation of the CARAC committee to develop a low energy RPAS class whose ability to cause harm, in the form of kinetic energy per unit of impact area could show to be evaluated below a certain threshold level. While this is theoretically still an appropriate distinction, **the choice of a 2 Kg maximum takeoff mass is reasonable** and is an easily verifiable simplification of this philosophy. The operational restrictions on this class are also reasonable, given the threat they represent.

11. Pilot Age Requirements: In accordance with the Phase 1 results of the CARAC committee, USC believes commercial RPAS pilots **should be at least 18 years of age** to ensure they possess the level of maturity required to balance safety and business priorities. This limitation is consistent with commercial, manned aviation. Those using RPAS for non-commercial reasons may be younger.

12. Is conformance with the Design Standard (in the current staff instruction) achievable: USC has heard of several cases where RPAS manufacturers are working to comply with this standard. In general, we believe **the standard is appropriate for the Small RPAS Complex Operation**. A simplified standard should be developed for the Limited Operations class that reduces the oversight based on the reduced risk created by the Limited Operations operational restrictions.

13. Beyond Visual Line of Sight – As the work on Small RPAS operating within VLOS comes to a close, all efforts should be focused on providing regional inspectors clear guidelines for approving SFOC applications for BVLOS – this material is currently being submitted to TC as the second phase of the CARAC working group.