



EUROCAE WG73 SG4 Activity Update

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UAS for VLOS Operations

Eurocontrol recognised the need for development of UAS Technical Standards to the degree that it recommended a harmonized approach between Member States. For this harmonization it intended for EUROCAE to become a focal point for this harmonized development. EUROCAE accepted the proposal and established WG-73, Unmanned Aircraft Systems. To support a specific request of EASA, the European Aviation Safety Agency, an airworthiness subgroup was established to assist in the development of certification criteria for UAS. Furthermore, WG-73 leadership recognized that the initial market demand would predominately be for Light UAS. Therefore the decision was taken to create Sub-Group 4, UAS for Visual Line of Sight Operations (VLOS).

Proposal for Operational Regulation for Light UAS

The first task that this Sub-Group has performed is developing a proposal for operational regulation for Light UAS with a mass of less than 150 kg. The basic approach for this proposal is to allow access to a certain part of the airspace with a relative low threshold for access. Since the CAA UK has already developed regulation for Light UAS operation (CAP 722), it was decided to take this regulation

as a starting point and adapt it to a generic advice on policy for Light UAS operation. Since reporting on progress last year, this report has been reviewed and redrafted within WG73 and found acceptable as a working group deliverable. The next step is a consultation round with EUROCAE members and to come to an official EUROCAE deliverable.

Normally, operational and technical requirements are the safeguards to protect people and maintain an accepted level of safety. For this volume of airspace, another safeguard is proposed; the UAS should stay at least 150 m clear from people or objects. With this, it is assured that people or property will not be harmed by the UAS in operation. Therefore, the operational and technical approvals could be relaxed from the normal criteria for manned aviation. This volume of airspace has been labeled Class 1 in the proposal.

If an operator wants to operate outside this volume of airspace, he automatically enters a volume of airspace labeled Class 2. In order to get access to this volume of airspace, the operator is required to contact his national aviation authority to discuss safe ways of operating.

Below is the proposal summarised in a table:

Environment	Constraints	Proposed Regulatory Principles
VLOS Class 1: Non-segregated airspace. Day/VMC conditions. No flying over/above any person, structure, vessel or vehicle not under the control of the aircraft operator. No flying within a horizontal/lateral distance of 150m from any person, structure, vessel or vehicle not under the control of the aircraft operator.	Within visual range radius of UAS-pilot, with altitude and speed limits consistent with visual range value, and with a limit on impact kinetic energy to be not more than 95 KJ. (If no other justification is given, default to maximum of 500m lateral radius, 400ft (120m) height above surface and 70kts level speed.	No formal airworthiness certification. Approval to operate based on technical assessment of construction and systems and demonstration/test flights to show correct operation and crew competence. These assessments will need to be balanced between the assessments for model aircraft (lower limit) and for manned transport aircraft (upper limit), focussing on the highest weight category allowed in the regulation. Care will need to be taken to make the regulation not too strict or lenient. (There may be a minimum mass or Kinetic Energy of aircraft below which no assessment is necessary.) Permission of local Air Traffic Service Unit (ATSU) will be required if operation is within controlled airspace.
VLOS Class 2: Non-segregated or segregated airspace. Day/ VMC conditions. Flying over/above any person, structure, vessel or vehicle not under the control of the aircraft operator. Flying within a horizontal/lateral distance of 150m from any person, structure, vessel or vehicle not under the control of the aircraft operator.	Within visual range radius of UAS-pilot and with altitude and speed limits consistent with visual range value. (If no other justification is given default to maximum of 500m lateral radius, 400ft (120m) height above surface and 70kts level speed).	Formal regulation: ▪ C of A ▪ Pilot license ▪ Type Certification ▪ MOA (Part 145), POA (Part 21G), DOA (Part 21J) requirements Or, apply other mitigations, such as using personnel to prevent public access to the operating area. (No formal airworthiness certification for unmanned aircraft of 20kg or less. There may be a minimum mass or Kinetic Energy of aircraft below which no assessment is necessary.) Permission of local ATSU will be required if operation is within controlled airspace.

VLOS Class 3: Segregated airspace only. Day/ VMC conditions. No flying over/above any person, structure, vessel or vehicle not under the control of the aircraft operator. No flying within a horizontal/lateral distance of 150m from any person, structure, vessel or vehicle not under the control of the aircraft operator.	Within visual range radius of UAS-pilot and with distance, altitude and speed limits that are consistent with remaining within the segregated airspace.	No formal airworthiness certification. Approval to operate based on technical assessment of construction and systems and demonstration/test flights to show that the aircraft can be prevented from leaving the segregated airspace, or reaching persons, vehicles, vessels or structures. Co-ordination with local ATSU required in case of incursions by other aircraft or unmanned aircraft excursion beyond the segregated airspace.
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The proposal is aimed at enabling operation in Class 1 volume of airspace. It does not propose regulation for access to Class 2 or 3.

Conclusion

The guidance document addresses operational considerations for light UAS of mass less than 150 kg. It makes recommendations that the responsible national authorities can use to establish a common European regulatory baseline and policies for visual line of sight operations. The document also directs the attention of operators to the considerations, constraints and regulations that apply when conducting UAS operations. It addresses operating principles associated with UAS flights within segregated airspace and within non-segregated airspace. Payload considerations, other than those that impact on the design and construction of the UAS, and associated payload radio spectrum requirements are outside the scope of the document.

And a final remark: the guidance document that is being developed is a proposal from EUROCAE only. It is up to national aviation authorities to adopt this proposal and include it in their national regulation.

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