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Meeting of the eVTOL Safety Leadership Group (eVSLG)
27 July 2022 14:00-16:00 BST
MINUTES

In attendance:

Matt Rhodes (MR)	Bristow Helicopters
Rick Newson FRAeS (RN)	Civil Aviation Authority
Frank Hitzbleck (FH)	Volocopter
Max Fenkell (MF)	Joby
Colin Russell (CR)	Lilium
Wg Cdr Ian Fortune (IF)	Military Aviation Authority (Rapid Capabilities Office)
Paul Harper (PH)	Vertical Aerospace
Will Fanshawe (WF)	Flexjet
Mike O'Donoghue (MO)	GASCO
Ray Forster (RF)	Civil Aviation Authority
Kirsten Riensema (KR)	Civil Aviation Authority
Tim Rolfe (TR)	HeliOffshore
Vicki Murdie (VM)	Future Flight Challenge - UKRI
Angela Lynch (AL)	Civil Aviation Authority (Secretariat)

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Updates and Matters Arising

Vicki Murdie (Innovation Lead, Future Flight Challenge) and Tim Rolfe (Chief Executive Officer, HeliOffshore) were introduced to the group. Ray Foster was introduced to the group as the CAA's Safety Performance Manager.

The minutes of the last meeting were agreed for publication.

The Chairs thanked participants for their commitment to the eVSLG, particularly recognising the busy time of year and high volume of external events and conferences that are currently taking place across the aviation industry. It was noted that the profile of eVTOL and related market developments remain top of many agendas.

A discussion was had on the formal decision taken by the UK CAA (and announced in May 2022) to base the UK's VTOL aircraft certification on SC VTOL. This reflects the CAA's continuing safety regulation approach. It also supports the fact that CAA experts contributed to the establishment of SC VTOL by participating in regulator to regulator and wider industry discussions (both before its 2019 publication and since). CAA is continuing to support important industry-led initiatives working to develop standards around the special condition, such as the EUROCAE Working Group 112.

The FAA's approach to regulating VTOL aircraft was also discussed. With prior permission, RN shared FAA information with members on its policy position. Like other NAAs and other aviation authorities this approach reflects learnings the regulator has gathered through its close collaboration with OEMs; its understanding of the evolving landscape for the development of operations globally; and a commitment to maintain high safety standards for aviation through proportionate application of regulations.

It was stated that both the FAA and SC VTOL approaches to seek to simplify certification processes where possible, by ultimately unifying initial airworthiness under a single set of special conditions and still maintaining a degree of flexibility (e.g. to apply where relevant other ICAO approved rules and specifications). Regulators also recognise the need behind these steps for standards to be developed by the industry alongside this regulation, and with support as appropriate.

It was noted that regulatory approaches and global discussions have extended beyond certification topics for eVTOL. For example, the FAA's current work on Powered Lift SFAR to enable commercial operations and pilot licensing for these types of aircraft. Members were informed of work done under GAMA to agree industry priorities to feed into the FAA's process on this.

It was noted that whilst there are some differences in approaches being taken in different jurisdictions, there are signs of overall harmonisation in many areas and some consistent thoughts emerging for example in how to address pilot licensing for eVTOL operations.

eVSLG Incident Response

Following previous conversations, MR confirmed to members that the incident response draft document would be circulated to members for comment.

A short discussion was had in relation to the current test flight phases that OEMs are largely going through. It was recognised that, different to the helicopter sector for example, there are currently no active operators and there remains for both safety and commercial reasons a higher degree of sensitivity. For this reason there are some rules and regulations – e.g. investor confidentiality regulations for listed companies – which may actively prevent public statements on any specifics.

It was agreed however more pressing in terms of the current OEM-led development stage is to embed the practice of information sharing amongst industry counterparts. This can be achieved effectively by sharing key issues that have been observed. In this way, it will not be necessary for intimate details to be shared in order for the group to move forward in developing the basis for a coordinated mechanism for incident responses at a later date. This will also allow the nascent sector to act more quickly when operations do start.

It was suggested that members might also find it useful to share the draft incident document with other experts (e.g. crisis management teams) in their organisation to maximise feedback.

UKRI Safety Report (2021)

VM gave members an update on the Future Flight Initial Aviation Safety Framework[1] (published last year) and UKRI's initial observations on the future aviation system's key themes as detailed. Whilst the Future Flight Challenge remit extends beyond that of the eVSLG, it was said that members' expertise would be welcome for helping UKRI to decide its next steps in assessing progress under the report. This will also help UKRI to determine current priorities it should work on, alongside wider industry and key stakeholders like the DfT and CAA as relevant.

VM provided detailed findings from the report as well as a series of open questions around what is needed now in terms of safety-focused activities to support further Future Flight Challenge activities. Potential establishment of additional, focused industry working groups was also discussed. Members found that whilst some of the report's initial recommendations were already completed or very much underway, there were likely to be other areas that could benefit from new or specific focus.

A brief discussion was had clarifying the CAA's regulatory safety management approach, as an evolving area of work aimed at continuous improvement in reporting and the overall safety of the sector.

Members noted the different risk mitigation types applied by entities in the aviation sector and the fact that whilst there are strong and highly identifiable ones (like design requirements) there are also system-based issues that need to be addressed in a combined or consolidated, and arguably more complicated ways. The latter tend to rely on the entity being able to demonstrate enough to create high degrees of confidence in how the operation is managed or the system as a whole.

Early safety risk management approaches under the nascent eVTOL sector also reflect this multifaceted thinking. It was noted that for the new sector, it is important that best practice approaches stem not only from those enshrined in rules and written policy, but also from some

[1] https://www.ukri.org/wp-content/uploads/2022/01/UKRI-140122-FutureFlightInitialAviationSafetyFrameworkFull.pdf

of the more informal best practices that have grown out of experience and been verbally passed on, but may not all be fully captured in formal requirements.

Members agreed public consultation needs to take place to also provide external perspective and that industry should also consider the potential for media announcements to fuel growing concern and raise more questions than answers in the short term.

VM and RN agreed to lead UKRI-CAA further discussion on the report's recommendations. Where UKRI feels it necessary to convene working groups or requests to industry, eVSLG members may be asked to provide direct support and for their views, to ensure there is minimal duplication with existing work programmes.

Members took note of an update on existing UKRI working groups in the UK – in particular the Future Aviation Industry Working Group on Airspace Integration, which is working on producing a plan at the end of the year that includes the integration of eVTOL operations in UK airspace. It was agreed that eVSLG feedback on the plan would be valuable.

HeliOffshore and eVSLG

TR gave a detailed presentation on HeliOffshore. He covered the initial set-up, its funding mechanisms, membership, safety performance model and current priorities. Members noted the impressive growth of HeliOffshore's membership. This gives the trade association considerable convening power and enables a more cohesive and inclusive conversation on the important safety issues affecting offshore operations. It was remarked that the meeting convened by Bristow at the recent Farnborough International Airshow had initiated discussion over whether a similar eVTOL focused trade association should be considered.

TR confirmed that for HeliOffshore's work and its members benefit, close association is kept with non-member stakeholders including the AAIB and UK CAA.

There was agreement that HeliOffshore's core elements (investment, trust and learning) are also expected to be established for the eVTOL sector, in coordination with and learning from existing air operations including these.

Members recognise the synergies between HeliOffshore's mission to enhance the safety of Offshore operations in the UK, and that of the eVSLG to establish a framework for safety discussions as a basis for ensuring safe eVTOL operations from the start. Similarly, it was noted that there are safety issues that eVTOL operations were likely to face that HeliOffshore members have already developed an approach for dealing with – such as, take-offs/landings from stabilised approaches.

Members thanked TR for his presentation and agreed the group would benefit from regular updates as well as more specific tie-ins with HeliOffshore's work, such as contributing eVSLG comments on specific risks or safety tasks under its Safety Strategy Panel. TR supported the suggestion of continued engagement between HeliOffshore and eVSLG. He noted this was in line with its approach to consider all stakeholders within the current and future offshore operations environment.

Emerging Risks Review

RN gave an updated overview of the CAA top safety risks data relating to all operations. It was noted that the draft eVTOL risks log pretty well matches the key risks collected for existing operations.

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A brief discussion was had on input received from members since the last meeting on different risk areas on which the eVSLG should specifically focus.

It was agreed there is an opportunity for this group to explore the risk of state of emergency/low reserves in-flight at this time. In the first instance a safety risk exercise carried out by the UK CAA and members' insight into how its own company is setting its controls and verifications will help to support this conversation. Members agreed this should be discussed as a key topic under the next eVSLG meeting.

Under emerging risks, a discussion was had reflecting on the safety issue of downwash as seen in current operations. It was recognised that data for eVTOL aircraft was still in its infancy, so it is difficult to reach any evidence-based findings. However, several academics, researchers and other aviation experts are starting to consider this topic with some potentially interesting results. The approach taken is to apply momentum theory against what is known of the dimensions and configurations of the eVTOL aircraft. OEMs will need to be the ones to validate such data and identify the extent to which this topic will be a factor in eVTOL operations in future. It was agreed that validation of such assumptions could provide a useful task for this group to participate in in future.

Next meeting date: 10 November 2022