



**Meeting of the eVTOL Safety Leadership Group (eVSLG)
11 January 2022 13:30-15:30 GMT
MINUTES**

Co-chairs:

Matt Rhodes (MR)	Bristow Helicopters
Rick Newson FRAeS (RN)	Civil Aviation Authority

In attendance:

Julian Firth (JF)	Air Accidents Investigation Branch
Ollie Dismore (OD)	British Helicopter Association
Steve Standing (SS)	Civil Aviation Authority
Marilyn Pearson (MP)	CAE
Mike O'Donoghue (MO)	General Aviation Safety Council
Will Fanshawe (WF)	Halo Aviation
Max Fenkell (MF)	Joby
Colin Russell (CR)	Lilium
Wg Cdr Ian Fortune (IF)	Military Aviation Authority (Rapid Capabilities Office)
Andrew Sage (AS)	NATS
Sam Wright (SW)	NATS
Simon Davies (SD)	Vertical Aerospace
Gareth Salt (GS)	Virgin Atlantic
Frank Hitzbleck (FH)	Volocopter

Secretariat:

Angela Lynch (AL)	Civil Aviation Authority
Gavin Rutter (GR)	Civil Aviation Authority

Apologies:

Rob Weaver (RW)	Eve Air Mobility
-----------------	------------------

Introduction

RN welcomed members to the first full meeting of the eVSLG, which had reverted to a virtual format due to the recent resurgence in covid numbers.

The importance of the collaborative nature of conversations for this forum was reiterated. Underpinned by confirmation that meetings will use the Chatham House rule and take into account where necessary, competition and antitrust legal considerations.

For members' information RN gave an update on CAA key strategic aims. He outlined the CAA's evolving 'Systems thinking' approach in dealing with complex new technologies and innovative challenge areas: including net zero propulsion, RPAS BVLOS integration and eVTOL in the short term; and stratospheric platforms, modular aircraft and supersonic flight in the longer term.

This approach is felt to correlate with wider UK approaches to aviation innovation, both in terms of industry and other agencies, like the MAA.

Minutes and Actions from the Previous Meeting

The minutes from the eVSLG introductory session (November) were approved for publication on the group's webpage.

Shared Document Space for Members

The secretariat confirmed that a shared document space for the group is in progress, and further updates will be provided when this is ready to go live.

Terms of Reference

The revised TORs were discussed in detail. Suggestions for minor amendments and further clarity on engagement, member and group accountabilities and outputs were made.

Incident Reporting

Members discussed incident reporting, which has been established at a high level within the TORs. This aims to set a framework for members to build upon in due course (recognising that eVTOL operations to which this reporting principally looks at are still in development).

It was agreed that this is an important theme and the group's response will be critical in terms of operational safety. Mandatory and Voluntary Reporting schemes for today's aviation operations were discussed, including conversations in other fora in Europe and internationally (in which some members of this group have also participated). Further consideration of the subject would be explored in relation to emerging hazards and risks activities.

Expressions of Interest log

The list of external stakeholders who have expressed interest in joining or supporting the eVSLG was shared. Where possible, the secretariat and chairs have spoken to these organisations directly to share information on the group and its objectives. The group considered that it would be useful to further categorise these stakeholders. Possibly by identifying those who could potentially contribute to working groups on an ad hoc basis, as well as potential future members.

Members also agreed to the need for transparency, external expertise and wider engagement as underpinning principles of this group to promote its legitimacy and usefulness for the market as a whole.

Stakeholder Mapping

Members discussed a high-level stakeholder view, identifying key entities, roles and accountabilities already actively engaged in eVTOL and wider air mobility topics. A map of the offshore helicopter sector was also shown to give a current sector view.

It was noted that eVTOL engagement includes a significant amount of interest from several areas of central Government - including Departments for Business Energy and Industrial Strategy and Transport - but also in terms of funded research, for example through UK Research and Innovation.

International stakeholders were also noted including the Vertical Aviation Safety Team (VAST) and EUROCAE, with whom members are already working with to support industry-led standards and other technical safety conversations around eVTOL.

eVSLG Activity Coordination and Emergent Risks

Using the stakeholder map, members discussed options for setting up specific sub-groups. It was suggested that a consolidated safety risk sub-group should be formed to report into the eVSLG core group. Specific activity focused groups could sit underneath the Risk sub-group, categorised by theme, outcome, systemic domain, capability area or another way. It was noted that designating tasks under individual capability areas could risk creating a prematurely “silo” approach or miss an element that a more holistic approach to a specific complex issue could uncover (earlier).

It was noted that individual risk identification work has been carried out by several eVTOL stakeholders. A brief discussion was had on eVTOL emerging top risks. It was agreed that whilst some of these risks are common across multiple aircraft types or rotorcraft style vertical landing and take-off, others were markedly different or may be more pronounced for eVTOL. For example, some eVTOL designs may give rise to multiple points of failure and their use of much larger Lithium-Ion batteries (for propulsion power source) introduced a need for further thinking.

A proposal was made that consideration should be given to creating a table of these was cross referencing as part of the Risk sub-group activities. It was agreed however, that the group should also explore a more systemic way of looking at risks for the eVSLG.

A brief discussion was had on CAA work on operational Key Risk Areas and its Regulatory Safety Management System (RSMS)¹, which the CAA uses to ensure that the aviation safety risks facing UK consumers and the public are being managed across the industry effectively.

The topic of System-Theoretic Process Analysis (STPA) - based on STAMP accident causality model – was introduced. It addresses critical challenges in safety, system engineering and security like human factors, complex software and new technology. Members agreed this could form a potential basis for taking a systemic approach to building a holistic eVTOL operations risk picture. It was recognised that facilitation would likely be needed for this in the first instance.

¹ <https://www.caa.co.uk/Safety-initiatives-and-resources/How-we-regulate/Safety-Plan/Enhancing-CAA-oversight/CAA-regulatory-safety-management-system/>

As a potential longer-term activity, another proposal was raised to also consider drawing out key risk areas for eVTOL operations against a specific phase - e.g., initial entry into service with low numbers of eVTOLs in airspace – to form a basis from which to work from.

Reference was made to how trial operator case studies are also proving useful in exploring eVTOL future operations under several initiatives, including CAA sandbox projects. It was noted that these discussions with industry also help to draw out how capabilities and safety risks evolve over time, as well as the real-world factors that influence outcomes such as community willingness and Social Licence. This approach aims also to avoid the silo effect by taking a specific concept and focusing the scope across the end-end needs to achieve this.

AOB

Director of Safety and Airspace Regulation Group for the CAA, Rob Bishton joined the meeting to confirm the CAA's commitment in supporting the eVTOL industry to develop its own safety leadership. He shared the CAA senior level engagement on this topic and expressed a desire for members to also help the CAA understand and engage effectively with broader challenges for integrating new markets safely.

Next meeting: 27 April 2022