



Meeting of the eVTOL Safety Leadership Group (eVSLG)  
24 2 2023 12:30-14:30 GMT  
MINUTES

**In attendance:**

Matt Rhodes (MR)	Bristow Helicopters
Rick Newson FRAeS (RN)	Civil Aviation Authority
Frank Hitzbleck (FH)	Volocopter
Tim Rolfe	HeliOffshore
Steve Hazlehurst	HeliOffshore
Max Fenkell (MF)	Joby
Colin Russell (CR)	Lilium
Wg Cdr Ian Fortune (IF)	Military Aviation Authority (Rapid Capabilities Office)
Will Fanshawe (WF)	Flexjet
Mike O'Donoghue (MO)	GASCO
Sam Wright (SW)	NATS
Ray Forster (RF)	Civil Aviation Authority
Mark Brown (MB)	Virgin Atlantic Airways
Julian Firth (JF)	AAIB
Ollie Dismore (OD)	British Helicopter Association
Giancarlo Silvestri	Skyports
Richard A Bassford	Virgin Atlantic
Paul Harper	Vertical Aerospace
Simon Davies	Vertical Aerospace
Marilyn G Pearson	CAE
Chris Booth (CB)	Civil Aviation Authority
Michael Pryce (MP)	Civil Aviation Authority

## TABLE OF ACTIONS

Section	Deadline	Action	Responsible
UK Government and Regulatory updates	Next meeting	invite Colin Chesterton and Stuart Lindsey (both CAA) to talk about the Airspace Modernisation Strategy at the next meeting	Chairs and Secretariat
Downwash/ Outwash and Vortex Ring State	Next meeting	Mike Pryce to invite Richard Brown of Sophrodyne aerospace to the next EVSLG meeting	Mike Pryce
Downwash/ Outwash and Vortex Ring State	Next meeting	Members agreed to this request, with Mike Pryce to contact them individually following the meeting.	Mike Pryce
Safety Risks Management Approaches	Next meeting	'eVTOL v drones' to be added to the Risk Log.	Rick Newson
Safety Risks Management Approaches	Next meeting	Colin Russell and Chris Booth to meet to discuss first steps on the Risk Sub-Group.	Colin Russell and Secretariat

## Introductions, Updates and Matters Arising

The co-chairs welcomed all to the first in-person meeting of the EVSLG, after more than a year of meeting virtually due to a combination of covid impacts and train strikes.

Introductions were made by all members reflecting the attendance of some new and different representatives.

Members were reminded of the antitrust and competition commitment for participants of the meeting. No objections or comments were raised.

The minutes of the last meeting were approved for publication on the CAA website.

## UK Government and Regulatory updates

RN updated members on key initiatives and recent workshops in the UK that may have some synergies with eVSLG or may require input from members in due course.

Members were informed that the Future Airspace integration Working Group (FAI-WG) convened by UK Research and Innovation have released a paper entitled 'Let's get flying: Our plan for action' on 7th February. It seeks to develop a consensus around how future operations are going to share the same airspace in a logical way. Several participants from the EVSLG that are also part of the FAI-WG, including HeliOffshore, NATS and the CAA.

It was noted that the report contains an action to be owned by the EVSLG, namely:

*'The CAA eVTOL safety leadership group to identify and publish a Civil Aviation Publication (CAP) on the UK's approach to operations of eVTOL aircraft, including airspace usage. This should have an initial focus using existing regulation but should also identify future regulation changes required to avoid limiting future operations.'*

However, it was recognised that the action was made in error, as it is not within the scope of the EVSLG to produce CAPs. It was agreed that both the FAI-WG and the EVSLG should communicate more closely on tasks that are relevant to each other's tasks.

## ***Airspace Modernisation Strategy (AMS)***

Members want the EVSLG to better understand the aims and implications of the AMS, so it was proposed that Colin Chesterton and Stuart Lindsey of the CAA are invited to the next meeting to discuss the consequences of the AMS for EVSLG members.

**ACTION: invite Colin Chesterton and Stuart Lindsey (both CAA) to talk about the Airspace Modernisation Strategy at the next meeting**

Members were also briefed on the Federal Aviation Administration's Notice of Proposed Rulemaking pertaining to Safety Management Systems, released on January 10th 2023.

### ***Emergent skills***

It was highlighted by several attendees that hiring for emergent skills is proving challenging with particular difficulties encountered regarding software engineering. RN suggested that taking a 'tangential' approach to recruitment might prove productive. For example, the CAA is considering the route of secondments with the private sector (done in a way to prevent regulatory capture).

Further recruitment issues highlighted that they have difficulties embedding the 'aviation mindset' into new recruits, whilst they also have a specific issue recruiting the first round of type-rated licencing engineers.

### ***Pilot Training Working Group***

Kirsten Riensema updated the group on the work of the pilot licensing group she convenes. She said that roundtables and stakeholder meetings have been held, but with the pathway still to be determined it's still a bit too early to share the findings of the meeting publicly.

Marilyn Pearson (CAE) offered to work with the Pilot Licencing WG; BALPA and ADS are also keen to work with the group.

### ***Ground Infrastructure***

Giancarlo (Skyports) is working on a Vertiport test bed in the United Kingdom, replicating a similar attempt in Paris, where they worked in collaboration with Volocopter in that instance. Marilyn Pearson asked about whether there had been discussions with Cranfield University in this regard; Andy Sage replied that it depends on what is trying to achieve. i.e., Cranfield is rural, so is not suitable for airspace integration trials.

**BIG DISCUSSION ABOUT AN ACTION relating to ground infrastructure – ask RICK and MATT about this**

**Marilyn Pearson contributed that in Japan EHANG are already undertaking fully autonomous trials CHECK!! This makes her think that autonomous operations are not as far away as we might believe.**

### **Emerging Risks**

#### ***Personal Electronic Devices (PEDs)***

Following on from November's discussion on carriage of Personal Electronic Devices, several perspectives were given regarding the policies that different eVTOL operators will adopt when commencing commercial operations.

Following on from November's discussion on carriage of Personal Electronic Devices, several perspectives were given regarding the policies that different eVTOL operators will adopt when commencing commercial operations. Among the mitigation measures planned include investing

heavily on high specification bags for storing PEDs, and take bags in fixed wing fleet, not helicopters/rotorcraft.

Charging equipment during flight is a key risk; this becomes greater still during autonomous operation. Matt Rhodes added that earbuds are a key risk that has not been fully addressed yet because they do not have an 'off' setting. At the same time, a key operational and commercial risk to consider is restrictions should not lead to vast amounts of ground infrastructure to monitor compliance.

In response to these risks, Skyports are leading a EUROCAE working group on Rescue Firefighting (WG 112). Rick Newson suggested lessons acquired by the CAA's Ground Handling Operations Safety Team (GHOST) could be transferred to eVTOL.

<https://www.caa.co.uk/ghost>

### ***Downwash/ Outwash and Vortex Ring State***

A presentation on downwash impacts research was given by Mike Pryce, an Emerging Policy Specialist at the CAA. Having spent much of his career as a defence historian based at Cranfield University, he is now working alongside Sophradyne Aerospace on a study to appreciate the possible downwash impacts of EVTOLs and the consequences for vertiport design and eVTOL flight paths.

Mike gave an update on the progress of the project stating that there is only five months between this point and its conclusion. During the talk he asked whether OEMs would consider sharing safety data on testing they had done to date. Members agreed to this request, with Mike Pryce to contact them individually following the meeting.

Following the presentation, Colin Russell of Lilium said that they had undertaken downwash modelling, CR will put Mike in contact with the Test Pilot to discuss these results further.

Max Fenkell said that for Joby, they would probably be able to share data with the CAA as regulator but will have to check if they can share data more widely with other members of industry.

Mike Pryce offered to give the EVSLG a mid-project update, and will ask his main industry partner Dr. Richard Brown to see if he can join.

**ACTION: Mike Pryce to invite Richard Brown of Sophrodyne aerospace to the next EVSLG meeting**

**UPDATE: Richard Brown has accepted the invite, but the next meeting of the EVSLG will have to take place in early June, due to diary conflicts.**

## Safety Risks Management Approaches

### *CAA Key Tracked Risks*

Rick Newson wants to put 'eVTOL versus drones' as a Key Risk Area (KRA) on the EVSLG risk log. It was noted that this is also a KRA for the military.

Action: 'eVTOL v drones' to be added to the Risk Log.

### *Risk Sub-Group*

Following the November meeting of the EVSLG, Colin Russell volunteered to be the first convenor of the Risk Sub-Group, an appointment that was approved unanimously. During the meeting's discussion on the Risk Sub-Group, Colin Russell outlined his principal aims for the sub-group, namely how does the EVSLG take ownership of dealing with key risks: he added that it needs the input and support of a broad range of the eVSLG membership.

Colin Russell said the vertiport ecosystem, including the modelling of micro-scale weather conditions, is one of the first risks that the Sub-Group will look at.

Following a discussion, it was decided that as part of the first piece of work of the Risk Sub-Group, Systems Thinking Process Analysis (STPA) will be used as a means of processing the key risks, firstly for Vertiports, and with time for the whole eVTOL ecosystem. Staff at the CAA are to receive training on this approach from Warwick Manufacturing Group (University of Warwick) in April, and will work together with participants of the sub-group to deliver this task.

Action: Colin Russell and Chris Booth to meet to discuss first steps on this task.

### **AOB**

It was agreed that returning to in-person meetings was a positive development for the EVSLG so future meetings will be held in this format.

Next meeting date: TBC 2023