



Meeting of the eVTOL Safety Leadership Group (eVSLG)
29 September 2023 10:00-16:00
MINUTES

In attendance:

| | |
|-------------------------|--------------------------------|
| Matt Rhodes (MR) | Bristow Helicopters |
| Bryan Willows (BW) | Bristow Helicopters |
| Rick Newson FRAeS (RN) | Civil Aviation Authority |
| Chris Booth (CB) | Civil Aviation Authority |
| Michael Pryce (MP) | Civil Aviation Authority |
| Tulki Jenkins (TJ) | Civil Aviation Authority |
| Masoud Ahmadi (MP) | Civil Aviation Authority |
| James Gillian (JG) | Volocopter |
| Max Fenkell (MF) | Joby |
| Colin Russell (CR) | Flexjet |
| Richard Banham (RB) | Flexjet |
| Wg Cdr Ian Fortune (IF) | Military Aviation Authority |
| Will Fanshawe (WF) | Flexjet |
| Mike O'Donoghue (MO) | GASCO |
| Gavin Moir (GM) | NATS |
| Sam Wright (SW) | NATS |
| Robert Weaver (RW) | Eve Air Mobility |
| Mark Brown (MB) | Virgin Atlantic Airways |
| Julian Firth (JF) | AAIB |
| Ollie Dismore (OD) | British Helicopter Association |
| Will Nathan (WN) | Vertical Aerospace |
| Paul Harper (SD) | Vertical Aerospace |
| Marilyn G Pearson (MGP) | CAE |
| Vicki Murdie (VM) | Innovate UK UKRI |
| Richard Brown (RB) | Sophrodyne Aerospace |
| Francesco Rabita (FR) | Flexjet |
| Tim Fauchon (TF) | British Helicopter Association |
| Simon Davies (SD) | Vertical Aerospace |
| Tim Rolfe (TR) | HeliOffshore |
| Steve Hazlehurst (SH) | HeliOffshore |
| Siddartha Khastgir (SK) | Warwick University |
| Andrew Strachan (AS) | Lilium |

TABLE OF ACTIONS

| Section | Deadline | Action | Responsible |
|--------------------------------------|---------------|---|-------------|
| UK Government and Regulatory updates | - | Secretariat to update members as and when there is new information from the BSi regarding their consultation on future flight taxonomy. | Secretariat |
| Risk Sub-Group | November 2023 | Members to inform Secretariat if they would like to take part in future workshops of the EVSLG Risk Sub-Group. | All |
| Risk Sub-Group | November 2023 | Workshops to take place during November to be held first at Warwick University and later in the month in central London. | All |

Introductions, Updates and Matters Arising

The co-chairs welcomed all to meeting of the EVSLG, which was kindly hosted by Flexjet at their office in Farnborough.

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

Vicki Murdie updated the group on the work of the Future Aviation Industry Working Group on Airspace Integration and the work of the Future Flight Challenge in general. She said that the highlight of the coming weeks will be the Future Flight Challenge meeting at the Museum of Science Industry in Manchester on the 5th and 6th December in Manchester, where the 'Future Flight Industry Group' Strategic Outcomes are set to be unveiled.

Co-chair Matt Rhodes provided an update on the work of the EVSLG's sister group, the Offshore Helicopter Safety Leadership Group. He said that work has been undertaken to refine the group's focus, which is now focussed on the following areas:

- Ground operations
- Flight operations
- Engineering

Further, they are now working more closely with Offshore Energy UK regarding various elements of their strategy, and to ensure that the work of the OHSLG aligns with their current requirements.

Matt added that the carriage of dangerous goods is another key area of interest for the group at the moment, as well as dealing with low availability of spare parts and key components.

Professor Siddhartha Khastgir of Warwick University highlighted work that BSi has been commissioned by UK Research and Innovation to complete, looking at creating a Future Flight taxonomy through their 'FLEX' programme. Attendees were told that there will be a consultation phase in due course, for which the BSi would very much like to receive the input of industry. Members will be updated by the Secretariat as and when there are any updates.

ACTION: Secretariat to update members as and when there is new information from the BSi regarding their consultation on future flight taxonomy.

UMS /VHM and predictive maintenance

A significant item was discussed looking at the [CAP1145](#) with regard to safety data on technical failures leading to accident – 83% of such failures were related in some aspect to the design. This led to a discussion among members where it was made clear that having access to key safety and performance data as gathered by aircraft systems was a key part of a predictive maintenance strategy, and the importance of sending parts that have failed back to the manufacturer for analysis, if design flaws are to be remedied.

It was agreed that an airworthiness sub-group should be established in due course.

Downwash research update

Dr. Richard Brown (Sophrodyne Aerospace) and Mike Pryce (CAA) gave an update on the downwash research that they have been reporting on regularly during the last few EVSLG meetings. They informed the EVSLG that the final report was due to be released imminently. Further, Richard Brown will be representing elements of the research to an audience at the Royal Aeronautical Society on the 24th of October, which all are welcome to attend.

Update: the paper was published on 17 October and can be accessed by clicking [here](#).

Risk Sub-Group workshop

The main item on the agenda for this quarter's meeting was a workshop looking at the progress of the EVSLG Risk Sub-Group's Systems Theoretic Process Analysis (STPA) looking at key hazards for event day helicopter operations between Battersea Heliport and Silverstone. In due course, the Risk Sub-Group will look at the key similarities and differences with prospective eVTOL operations, and how we can pre-empt the risks prior to operations taking place later in the decade.

The work is being conducted in conjunction with Warwick Manufacturing Group, University of Warwick and is led by Professor Siddhartha Khastgir, who kicked-off this session. He began by bringing all attendees up to speed with the STPA theory and the aims of the exercise. This was followed up by Colin Russell, Risk Sub-Group lead, detailing what the EVSLG hopes to achieve from the STPA, both in terms of improving business as usual operations and pre-empting the hazards that may present themselves, once eVTOLs commence revenue operations.

The meeting then went into workshop format, where all attendees were asked to examine the control structures that have been generated thus far, for the three phases of the Battersea to Silverstone journey, i.e., take-off, flight and landing. Attendees were invited to place comments on the control structures they disputed, to inform future refinement of the model.

Following the workshop, there was an open discussion of what members had observed, and thoughts about next steps, both in terms of the key challenges and hazards facing eVTOLs and the logistics of how the Risk Sub-Group will meet. It is the intention that two more one-day workshops will be held before the end of the year, which should be sufficient to complete the business-as-usual event day operations control structure. Next year, attention will turn to the deltas with future eVTOL operations, which will likely last the whole of the first half of 2024. It is

proposed that the CAA present interim results at HAI Heliexpo, to be held in Anaheim, California in February 2024.

Action: members to inform Secretariat if they would like to take part in future workshops of the EVSLG Risk Sub-Group.

Action: Risk Sub-Group workshops to take place during November to be held first at Warwick University and later in the month in central London.

AOB

It was agreed in a previous meeting that in-person meetings are preferable as they are seen as more conducive to productive discussion. **Volunteers are therefore sought to host future meetings.**

Next meeting date: 14th December 2023.