



Post Display Season 22 Symposium Admin Intro – Evan Davies



Admin Brief



- Intro
- Fire Assembly
- Alarms (Other)
- Covid
- Security passes/Photography
- Smokers (no smoking)
- Phones
- Toilets
- Accommodation (Keys)
- Dining Arrangements
- Teas and Coffees
- Display stands
- Layout – Central door closure



Post Display Season 22 Symposium

Michael Macdonald
CAA GA & RPAS Unit – Co-Head



Post Display Season 22 Symposium

Paul Sall - CAA GA & RPAS Unit
Wg Cdr B Smy - MAA Op Assurance



Aim



- ***Facilitate the identification of lessons from the preceding Display Season, share best practice and review issues and trends arising.***
- ***Importantly it provides an opportunity to generate feedback for the Regulators and contribute to the ongoing improvement of safety within the flying display environment.***



Outline Agenda



Post Display Symposium 2022	
Time	Title
1000	Intro/Welcome
	<i>Intro to Regulatory Team - CAA</i>
	<i>Intro to Regulatory Team - MAA</i>
1015	Pre-Season Symposium Survey outbrief
	<i>One-day Revised Format</i>
1030	DS 22 Summary
1045	DS22 – CAA outbrief
	<i>Display Events - Stop/Too Low, Close Calls and Safety Incidents</i>
	<i>Audits/Inspections</i>
1115	DS22 – MAA outbrief
	<i>Display Events - Stop/Too Low, Close Calls and Safety Incidents</i>
	<i>Audits/Inspections</i>
1130	CAA/MAA Audits/Inspections
	<i>Issues/Trends arising - CAA</i>
	<i>Issues/Trends arising - MAA</i>
1200	HF Syllabus
A/R	FDFG Outbrief
1300	Lunch
1345	Display Flying Incident - Engine failure in the Bristol M.1C. Shuttleworth
1430	BADA Update
1445	Events' Teams Report – DS 22 Summary and issues arising
1500	Coffee
1530	FDD/FCC - Warbird Monitoring
	FDD/FCC - Construct - SQEP
C1600	Questions and dates for 2023
	Final Comments



CAA Air Display Team



Air Display Team



As a Team, our Aim is to Support the CAA SARG long term strategy by providing:

- **Oversight, enforcement and direct activity in support of UK Flying Displays and Special Events**
- **A just safety culture through regular engagement with the regulated community and other regulators**
- **Robust planning to support the UK Display Season (DS)**
- **An appropriate level of regulatory policy that is kept up-to-date and relevant**



CAA - Air Display Team



- **Manager + 4 FSOs**
- **Paul Sall** - RAF Flight Engineer (C130, Sentry, Lancaster), Tours in MoD, NATO and as the Asst Defence Attaché (India). Air Show Director: RAF Waddington International Airshow, Port Rush Airshow and Scampton Airshow. **GAU: 4 years**
- **Paul Szluha** - Commercial pilot/DA Holder/Engineer, Owned an aircraft maintenance company. B17 pilot and owns a Tiger Moth. **GAU: 7 years**
- **Matthew Hill** - Commercial pilot, DA holder. Harvard Pilot, CAA FI & UPRT Instructor and owns an RF-4. **GAU: 11 years**



CAA - Air Display Team



- **Philip Brown** – Former RAF QFI and now a GA pilot. Held a DA and continues to be a Flying Instructor specialising in vintage aircraft, aerobatics and formation training. **GAU: 1 year**
- **Richard Crockett** – Gliders and light aircraft pilot with c5000hrs. Was CFI and Head of Training at Booker Gliding Club and a DAE. Holds CAA FI and FE ratings and a Part-66 aircraft maintenance licence. Flies with the Shuttleworth Collection and volunteers as a Senior Investigator of Air Accidents, and Regional Examiner for the British Gliding Association. **GAU: 2 months**



GA@caa.co.uk



MAA Air Display Team



2022 Pre-Season Symposium Survey



2022 Pre-Season Symposium Survey



Return from 42% of attendees



2022 Pre-Season Symposium Survey



- Pre/Post Display Symposia format and timescale:
 - 68% Prefer a 2-day event – Pre Season Display Symposia .
 - 54% Prefer a 1-day event - Post Season Display Symposia .
 - 61% Prefer attending both Pre and Post Display Symposia.
 - 39% Would prefer an attended pre-display Symposia and an online post display Symposia



2022 Pre-Season Symposium Survey



Attendees specifically requested:

- Greater discussion on in-season incidents i.e. warning calls and SRG 1305 reports.
- More discussion on FDD issues. c. Discussion on Display Item/Team preparation and issues arising.
- More Case Studies.
- More guest speakers.
- Discussion on how best to encourage Event Organisers to attend future Symposiums



2022 Pre-Season Symposium Survey



Attendees specifically requested:

- Greater discussion and in-season incidents i.e. warning calls and SRG 1305 reports.
- More discussion on FDD issues. Discussion on Display Item/Team preparation and issues arising.
- More Case Studies.
- More guest speakers.
- Discussion on how best to encourage Event Organisers to attend future Symposiums



2022 Display Season CAA – Paul Sall

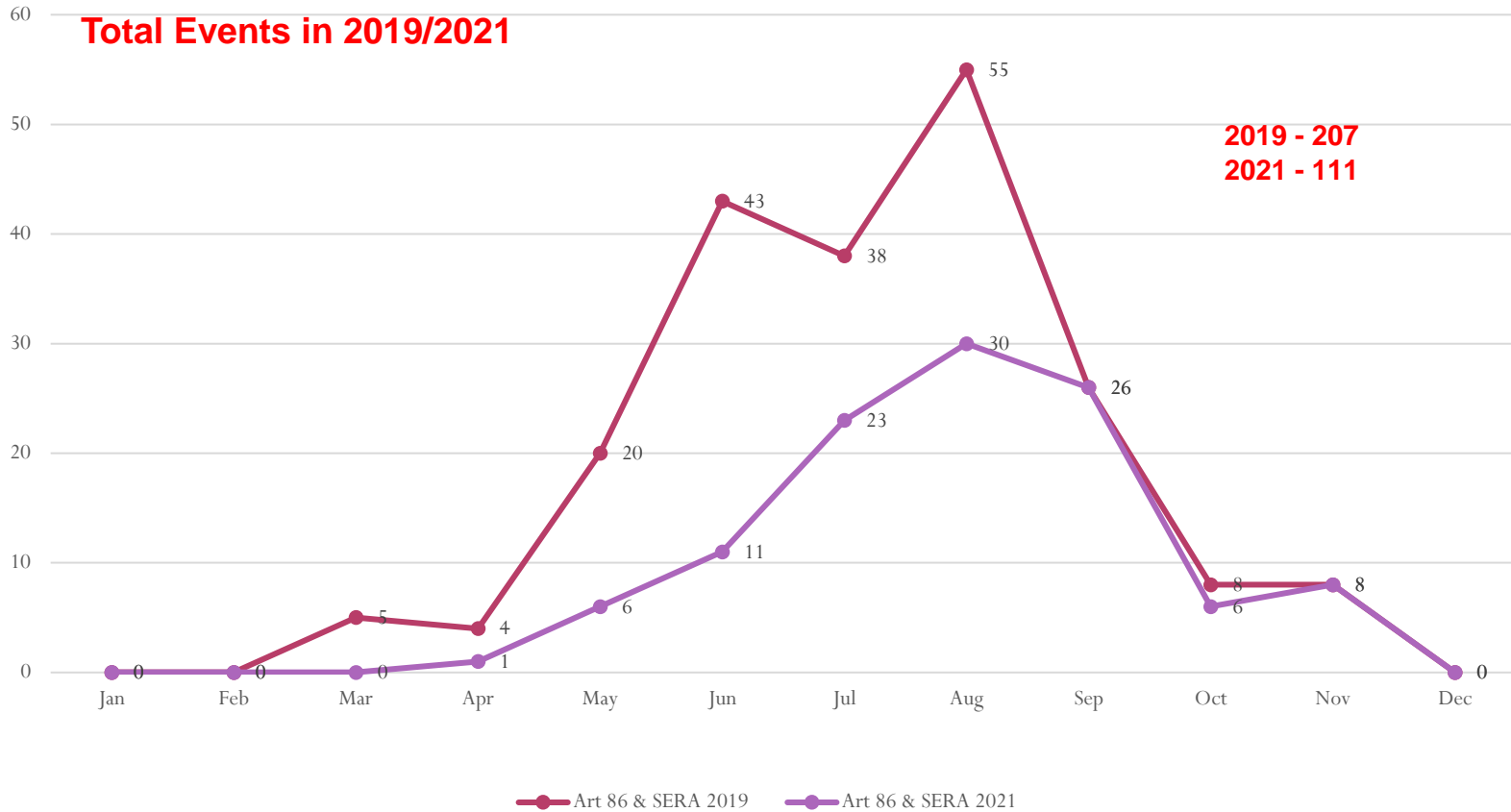


DS 22

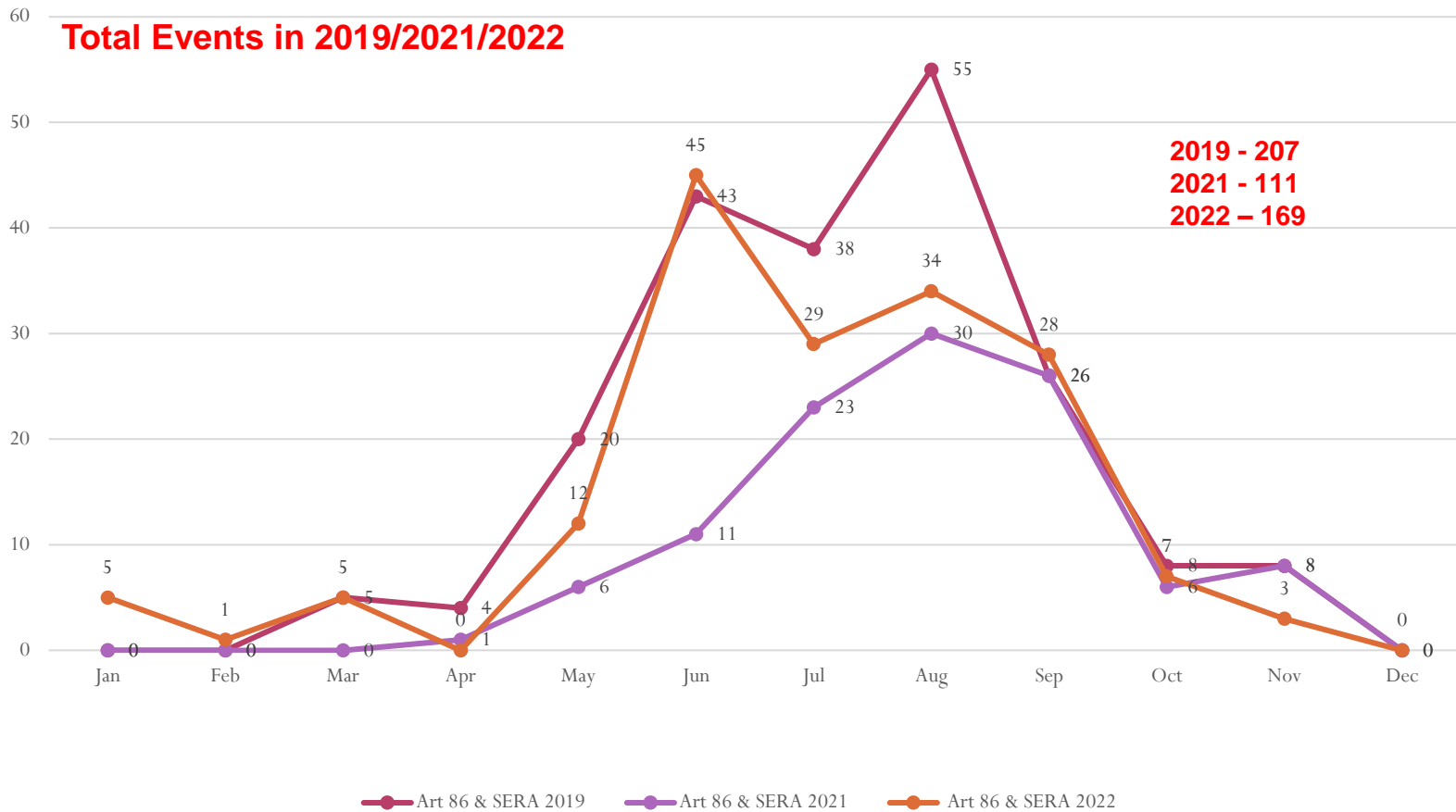


- 125 Art 86 Flying Displays
 - 44 SERA Private Flying Displays
 - 40 MAA Regulated Flying Display
-
- **DS 22 CAA Flying Display applications are at 82% of DS 19**

Context for Display Season 22



Context for Display Season 22





Facts & Figures 2022

Most reported safety concerns



5 Mechanical malfunctions



0 Public infringements



8 Airspace infringements



6 Drone activity/infringements



42% Late applications

6% Applications <7 days

100% Applications processed

2 FDDs trained
1 Revalidated
1 AFDD Accredited
Total Current 50
7 New DAEs
Total Current 52
Active 45



1



High severity occurrences

8 Reportable Incidents



0 STOP calls

25 'too close' calls
11 too low' calls
9 'terminate' calls

21 of 29

Inspections conducted by the UK CAA (72% of those with a Medium/High PBO assessment)



98% of FDD reports considered of good quality



FDD Reporting



SRG 1305 Feedback

FDD Post-Display Reports



Post Event Reporting Process is now well established

- Post Event Reporting - *100% returns*
 - *51% reported issues (calls/safety occurrences/undesirable events etc)*
 - *Air Display Team Review/Investigation*
 - *73% of the issues reported required No Action*



SRG 1305 Feedback

FDD Post-Display Reports



- **Common issues arising:**
 - *Too Close and Too Low warning calls, the majority of which are minor transgressions that were immediately addressed by the FDD / pilot and not repeated.*

- **NOTAM and RA(T) incursions:**
 - *Continue to be an issue and are being raised through CAA infringement Co-ordination Group with education through GaSCO/ASTRAL Aviation Safety Promotion*



SRG 1305 Feedback

FDD Post-Display Reports



	Accident	Safety Incident	Undesirable events	RA(T) / NOTAM Incursions	Mech failures	Stop Calls	Too Low Calls	Too Close Calls	Terminate Calls
2019	0	6	6	4	6	2	20	20	0
2021	1	2	8	5	4	0	10	16	3
2022	0	10	8	8	5	0	11	25	9



SRG 1305 Feedback

FDD Post-Display Reports



- **Trends developing:**
 - *No ongoing trends noted*

Occurrence reporting helps improve aviation safety by ensuring that relevant information is reported, collected, stored, protected, exchanged, disseminated, and analysed.

It is not to attribute blame or liability but supports continued learning to make flying safer.



FDD Reporting – Specific Items
Matthew Hill - CAA GA & RPAS Unit



SRG 1305 Feedback

FDD Post-Display Reports



Undesirable / HF Incidents: SRG 1305

- Two occurrences where the number of persons on board the aircraft exceeded expectation.
- Both involved military based tasking.
- CAP 403 (6.53) requires minimum crew for flying displays.

CAA Action:

- *Operator contacted upon receipt of the report –both operators are now reviewing their operating procedures.*

LEARNING point:

- ***Display operators to be aware of the requirement of minimum crew for flying displays.***



SRG 1305 Feedback

FDD Post-Display Reports



Safety Incident: SRG 1305

- Display aircraft held prior to landing, as another aircraft called finals for the reciprocal runway in use.
- The event was highlighted in the FDD report and MOR submitted by ATC.

CAA Action:

- CAA Investigation revealed that pilot appeared to line up against the primary runway, but then flew a landing configured circuit and landed on the duty runway.
- A CAA investigation concluded that non-standard RT phraseology was used to give a position report, which led to confusion in ATC and in other aircraft in the pattern as the intentions.

LEARNING point:

- ***All parties to use clear and unambiguous RT.***



SRG 1305 Feedback

FDD Post-Display Reports



Safety Incident: SRG 1305

- A/C displaying as part of a formation, pilot reported vibration and intention to land immediately.
- Decision to land immediately called on display frequency with no subsequent calls.
- The a/c was at c100 feet when the call was made, the aircraft then disappeared behind the trees. It was next seen on finals and executed a successful landing.
- It was not known if the aircraft had force landed behind the trees.

CAA Action:

- No Action.

LEARNING point:

- **Communications and Briefs are essential to keep all informed of intentions.**



SRG 1305 Feedback

FDD Post-Display Reports



Undesirable Incident: SRG 1305

- Display Pilot submitted SRG 1305 citing a communication issue.
- Whilst airborne, the picture created on the radio differed to what was actually happening in the air and on the ground. It also differed from that expected following the pre-display brief.
- All the pilots acted in a safe manner and any potential conflict was averted.
- Upon receipt of the SRG 1305 it was noted that there was the potential for the situation to develop into an undesirable outcome.

CAA Action:

- A meeting with the key stakeholders has been convened.

LEARNING point:

- ***The form SRG 1305 can be used by anyone in the community to report an area of concern (pse bear in mind normal Reporting requirements).***



SRG 1305 Feedback

FDD Post-Display Reports



Safety Incident: SRG 1305

- During a formation display a team member reported vibration through the controls. The team leader declared a "Terminate" and the display ceased. The lead aircraft conducted a visual check of the affected aircraft and reported the issue to the pilot. The pilot carried a slow speed handling check at a safe altitude and landed safely.
- AAIB were informed.
- MOR raised.

CAA Action:

- No Action from an Air Display perspective.

LEARNING point:

- **All the correct reporting procedures were followed enabling the community to record and investigate as required from the incident.**



SRG 1305 Feedback

FDD Post-Display Reports



Safety Incident: SRG 1305

- Aircraft landing on a bumpy grass runway where the prop struck the ground.

CAA Action:

- CAA Airworthiness Team advised and of the possibility of an MOR submission relating to a prop strike.
- No MOR or VOR was filed.

LEARNING point:

- ***The importance of filing an MOR when required.***



MOR

Occurrence reporting helps improve aviation safety by ensuring that relevant safety information is reported, collected, stored, protected, exchanged, disseminated, and analysed. It is not to attribute blame or liability but supports continued learning to make flying safer.



SRG 1305 Feedback

FDD Post-Display Reports



Too close Warning Call: SRG 1305

- The FDD issued a 'too close' warning call on two separate occasions, at the same location, on the same day, to the same pilot flying different aircraft types.
- The FDD cited that the topography and display area gave rise to the issues.

CAA Action:

- Monitor trend as required.

LEARNING point:

- **FDDs to be conscious of a pilot displaying different types over a short period.**
- **FDD to ensure that the display area is suitable for the aircraft performance.**
- **Pilots to be conscious of possible negative transfer of behaviours between aircraft.**



2022 Display Season MAA – Wg Cdr Ben Smy



CAA HF Syllabus Paul Sall



CAA HF Syllabus



- Improving our understanding of how Human Factors (HF) impacts on the safety of Flying Displays is a priority for the CAA.
 - [Human factors in air displays | Civil Aviation Authority \(caa.co.uk\)](#) [Link](#)
- CAA commissioning two specific studies:
 - **NATS: [Human Factors in Flying Displays.](#)** [Link](#)
 - The second study was conducted by the Health and Safety Laboratory: [HF in Air Displays: Transfer of Behaviours and Error Path Study.](#) [Link](#)



CAA HF Syllabus



Flying Displays HF Syllabus: designed to be an adjunct to HF already received:

- Commercially/Professional Training
- FDD Courses
- DA Evaluations
- **Flying Displays HF Syllabus: Designed to be delivered at Symposia during DS 18/19/20**
 - Delivery affected by COVID 19



CAA HF Syllabus



Air Display HF (online) Course for DAEs, DA holders and FDDs comprises:

- **Five online videos** on Performance Influence Factors (PIFs), available to view as required.
- **Two online** interactive webinars (one on the FAiR Model and another on Performance influencing Factors - PIFs), available dates are:
 - PIFs: 21 Nov (Mon PM): 15 Dec (Thu PM): 27 Jan (Fri PM): 17 Feb (Fri PM)
 - FAiR Model: ~~4 November (Fri PM)~~; 2 Dec (Fri PM)



CAA HF Syllabus



- This new online **Air Display HF Course** is now a mandatory requirement
 - We track those who have started and completed the course
- Invitation sent to all current DAEs, DA holders and FDDs to allow access for registration onto the course
- Please complete the comments' sections, this allows access to further content but will also inform/further discussion on experiences, insights, case studies and best practice
- FCC member – please make contact with ADRT for Registration Details



CAA Onsite Inspections



CAA Onsite Inspection Trends Arising



- 100% tabletop audit of all display applications received
- On-site inspection of some events following a Performance Based Oversight (PBO) assessment.
- A 12-point matrix including: Geographical Complexity of site; Congested Area Complexity; Second Party Complexity; Flying Display Directors Experience; Number of aircraft displaying; Complexity of Display; Aircraft Performance; Formation/Scenario Flying and Dusk/Pyro Display.
- 21 of 31 PBO mandated inspections Completed



CAA Onsite Inspection Trends Arising



- **Issues Arising:**
- SRG 1327. Quality, accuracy and timeliness of SRG 1327 (Display Pilot's / Aircraft Owner's / Aircraft Operator's Certified Declaration for Submission to the Flying Display Director)
 - Associated Hazard Information to ensure that the Emergency Services are advised.
- Accurate NOK. Note, this should not quote someone who is flying in the same formation.
- FCC Construct – Use of SQEP
- Pilots Briefing Notes – quality varied considerably – minimum as recommended in CAP 403



LUNCH



Display Flying Incident Shuttleworth - Engine failure in the Bristol M1C



FDD/FCC Discussion



- **Display Flying Incident Shuttleworth**

DAE/FDD John Hurrell

DAE/FDD – Roger (Dodge) Bailey



BADA Update - Matt Wilkins



Events Team Update

Sqn Ldr Bill McMiken



FDD/FCC – Discussion Warbird Display Flying



FDD/FCC Discussion



- **Aim: Discuss FDD/FCC Monitoring Warbird Display Flying**

Officer Commanding BBMF – Sqn Ldr Mark Sugden

FDD – AL Lockwood

DAE – Eskil Amdel



FDD/FCC – Warbird Monitoring



- **Experience/Background**
 - Military Civilian Established Entities
 - Single entity Pilots
- **Pre-Display Activity**
 - DA Pre-display prep
 - Weather/temp issues
 - DAE Oversight
- **Display Oversight**
 - Human Factors
 - FDD/FCC experience
 - FDD/FCC calls



FCC Construct - SQEP

Philip Brown - CAA GA & RPAS Unit



FCC Construct - SQEP

- Introduction
- Definition of SQEP
- CAP 403 Requirements
- Things to Ponder



SQEP – A Simple Definition

A Suitably Qualified and Experienced Person



CAP 403 Requirements (FCC)

8.33 Flying Displays consisting of 7 Display Items or more **must** have a FCC, details of which should be on the application.

Additionally, the CAA **may**, following review of the complexity of an application, require a FCC for Flying Displays with fewer than 7 Display Items.

8.34 In exceptional circumstances, the FDD may apply for an exemption from the requirement for a FCC by sending suitable justification to the CAA GA Unit.

8.35 A FCC **shall** be appointed by the FDD who **shall** issue the FCC with appropriate Terms of Reference.



CAP 403 Requirements (FCC)

4.12 The FCC is appointed by the FDD and **should**, whenever possible, consist of a **core of pilots with experience** on the categories of aircraft being flown at the Flying Display.

The FCC may be supplemented by other suitably experienced persons.

Additionally, some members of the FCC **should** hold, or have held, a UK DA or UK PDA.



Points to Ponder

1. The FCC is appointed by the FDD
2. The FCC doesn't need to consist exclusively of pilots.
3. Not all pilots in the FCC need to hold DAs.
4. Non-DA, non-pilot FCC members still need relevant qualifications and experience.

Roles of the FCC (CAP403 Para 8.37)

- a) To assist the FDD in the safe execution of the Flying Display;
- b) To assist the FDD in monitoring the standard and Flying Display related discipline of Participants;
- c) To provide the FDD with specialist knowledge regarding specific display items;
- d) To provide the FDD with a specialist opinion in case of any regulatory infringements;
- e) To advise the FDD on restrictions or additional limitations if required;
- f) To monitor the conduct of all display participants for regulatory compliance;
- g) To intervene or stop, on the grounds of safety, any display Participant or, in extreme cases where the FDD cannot be consulted, the whole Flying Display;
- h) To assist the FDD in other duties as directed and agreed.



Roles of the FCC (CAP403 Para 8.37)

- a) To assist the FDD in the safe execution of the Flying Display;
- b) To assist the FDD in monitoring the standard and Flying Display related discipline of Participants;**
- c) To provide the FDD with specialist knowledge regarding specific display items;**
- d) To provide the FDD with a specialist opinion in case of any regulatory infringements;**
- e) To advise the FDD on restrictions or additional limitations if required;
- f) To monitor the conduct of all display participants for regulatory compliance;**
- g) To intervene or stop, on the grounds of safety, any display Participant or, in extreme cases where the FDD cannot be consulted, the whole Flying Display;**
- h) To assist the FDD in other duties as directed and agreed.



What Constitutes SQEP in a FCC Member?

1. They must be 'qualified' in a directly relevant field.
2. They must have extensive experience relating to the flying, displaying or monitoring of specific display items.
3. They need a thorough knowledge of the regulations (CAPs 403 and 1724), to be able to support the FDD in regulatory compliance.
4. They must have previous air display experience as a FDD or FCC member, or as a shadow FCC member.
5. They must have enough aviation experience and confidence to highlight potential issues before safety is compromised.

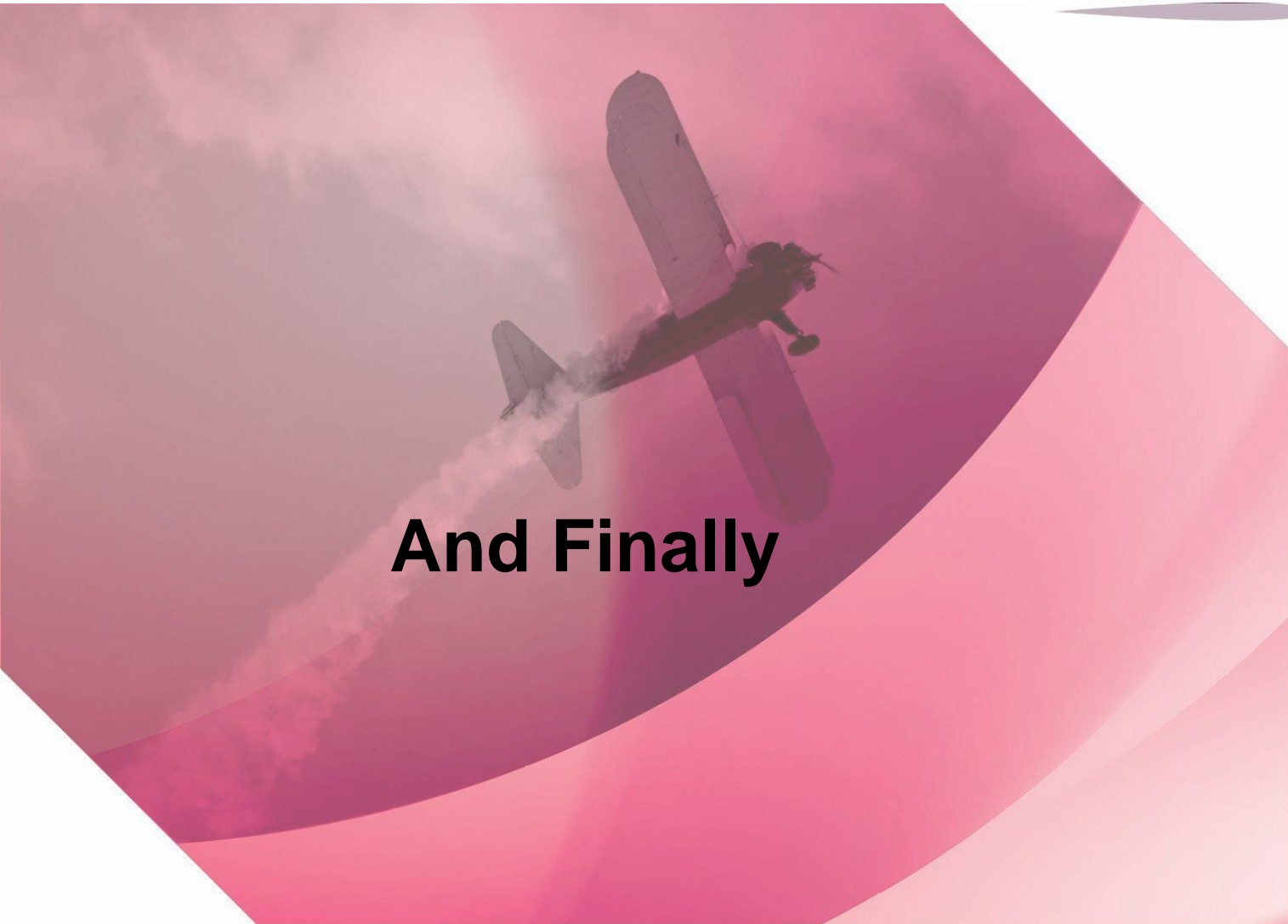


Final Points to Ponder

1. FCC members must be SQEP.
2. SQEP is defined by the FDD for their particular display.
3. SQEP is gained by building on the person's aviation background with repeated exposure to the air display environment.
4. FCCs need Terms of Reference.
5. You might only need an extra pair of hands.

A large, semi-transparent pink and purple graphic overlay covers the center of the slide. It features a silhouette of a military aircraft in flight, viewed from an aerial perspective, with a white smoke trail behind it. The background of the overlay is a gradient of pink and purple.

FCC Construct - SQEP Questions



And Finally



Skywise



- Introduced in 2015 with currently over 32,000 users
- 300 alerts every year from across the CAA
- Fewer people use the App than email and the dedicated website.
- **Skywise App** will be **discontinued** at the **end of November** CAA
SkyWise Alert (mailchimp)
- If you currently use the SkyWise app we recommend that you **create an email subscription** for your chosen categories if you haven't already done so and then uninstall the app



CAA Post Display Season Safety Survey 2022

[CAA Post Flying Display Season Safety Survey 2022](#)
[\(surveymonkey.co.uk\)](#) LINK

CLOSES 9 December 2022



CAA Post Display Season Survey 2022

<https://forms.office.com/r/LZBgKPATs9>





Future Dates

FDD Training Course

[Flying display director accreditation | Civil Aviation Authority \(caa.co.uk\)](http://caa.co.uk)

[UK Flying Display Director Accreditation Course | CAA/MAA Accreditation for Flying Display Directors \(fddtraining.co.uk\)](http://fddtraining.co.uk)

- 17 Jan 2023 – FDD Revalidation
- 18 Jan 2023 – AFDD Initial Accreditation
- 18-19 Jan 2023 – FDD Initial Accreditation
- 11 Dec 2023 – FDD Revalidation
- 12 Dec 2023 – AFDD Initial Accreditation
- 12-13 Dec – FDD Initial Accreditation



Future Dates

28-29 March 2023 – Pre-Season Display Symposium
Defence Academy Shrivenham

14 November 2023 – DAE Seminar **tbc**

15 November 2023 – Post Season Display Symposium **tbc**
Both at Duxford tbc

..... and finally finally

- I want to know how the CAA can help you, what are we not doing?
- If, in the run up to, or during DS 23, we are not supporting you, then I want to know
- You can email me on paul.sall@caa.co.uk at any time
- I look forward to working together with you so that we can all achieve a safe and effective DS 23.

Questions

GA@caa.co.uk

paul.sall@caa.co.uk