

6th European Airshow Regulators Meeting (EARM)



EUROPEAN
AIRSHOW
COUNCIL
E A R M



'Promoting Excellence and Safety in Airshows'

22 NOV 23

14:00 HRS (CET)
via virtual platform





Admin



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- Please mute your microphone, please raise your hand for comments or just open the microphone
- This presentation will be used as meeting records.
- A **participation list** (name, country, email) will be distributed to all participants.

Please advise if you do not want to have your contact details distributed to the other participants (GDPR General Data Protection Regulation)

Objectives



3

- **Promote Safety** in Airshows
- **Get to know each other** - informal networking
- **Creating a platform (EARM) to share experience, exchange views and expertise, discuss regulatory issues** and chances to harmonise the regulatory framework in Europe to promote safety and excellence at our airshows



22/11/2023



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DGAC France



22/11/2023



Schedule



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- 1400 – 1415

Introduction / Round table - 1 Min per participant (name, organization)

Objectives and status after last EARM Meeting

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- **Austria (Austrocontrol)**
 - [Andreas Winkler](#)
 - [Gerold Fuchs](#)
- **Croatia (CAA)**
 - [Hannah Horváth](#)
- **Denmark (CAA)**
 - [Martin Junge Thorsen](#)
 - [Camilla Christina Jehg](#)
- **Finland (Traficom)**
 - [Pekka Ikonen](#)
- **Germany (RP Darmstadt)**
 - [Florian G. Hose](#)
- **Hungary (ITM)**
 - [Gyongvike Szeles](#)
- **Norway (CAA)**
 - [Thomas Hytten](#)
- **EASA**
 - [Vladimir Foltin](#)



Schedule



6

- 1415– 1430

Commercial Air Transport aircraft at Airshow's:

Keynote speaker CMD Giovanni Zanivan (Helvetic Airways AG);

E190 & Patrouille Suisse at “ 75 Years Zurich Airport”





Schedule



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1430– 1520

- Commercial Air Transport aircraft at airshows contd.
- Airshows in Spain / Gustavo Cuevas AESA
- Airshows in Poland / Piotr Kaczmarczyk
- CAA UK “post season Symposium” 2023 by Paul Sall
- Safety Promotion, Incident/Accidents 2023, Environment
- Outlook 2024 / EAC 2024

1520– 1530

- Discussions / Closing / Next Meeting





- **Austria (Austrocontrol)**

- Andreas Winkler
- Gerold Fuchs

- **Bulgaria (CAA)**

- Anatolii Ivanov

- **Croatia (CAA)**

- Dario Tomasic

- **Denmark (CAA)**

- Martin Junge Thorsen
- Camilla Christina Jehg
- Maria Amalie Wiuff

- **Finland (Traficom)**

- Jani Heiskanen
- Pekka Ikonen

- **Germany (RP Darmstadt)**

- Florian G. Hose

- **Greece (HCAA)**

- Damianos Skourtis

- **Hungary (ITM)**

- Hanna Horvath
- Gyöngyike Szeles

- **Latvia (CAA)**

- Erika Neimane

- **Norway (CAA)**

- Thomas Hytten
- Nils-Jorgen Mehus



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- **Portugal (CAA)**
 - Filipa Alexandra Machado
- **Serbia (CAA)**
 - Vladimir Krstin
 - Viktor Milenkovic
- **Slovenia (CAA)**
 - Andrej Medvedec
- **Spain (Seguridadaerea)**
 - Gustavo Cuevas
 - Peláez Trigueros Carlos Alberto
- **Sweden (Transport Styrelsen)**
 - Per Englund

- **Switzerland**
 - Jörg Thurnheer
 - Gina Staub
 - Giovanni Zanivan (Helvetic)
- **United Kingdom (CAA)**
 - Paul Sall (Co-Chair)
- **EASA**
 - Vladimir Foltin
 - Marko Tahtivaara
 - Wendell Lynch

CAT aircraft at airshows / History (1986)

10



CAT aircraft at airshows / Today

11



CAT aircraft at airshows / Today

12



CAT aircraft at airshows / Today

13



CAT aircraft at airshows / Today

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Emirates headlines the Dubai Airshow's spectacular opening flypast formation



Dubai, UAE, November 13, 2023 – Flying the flag for UAE aviation, the stunning opening flypast at Dubai Airshow 2023 once again showcased the nation's capabilities with Emirates headlining the commercial aerial formation.

Contact Us

Email: pr@emirates.com

Share this page

Emirates headlines the Dubai Airshow's spectacular opening flypast formation:



Social media





EARM ZURICH ARPT

Giovanni Zanivan, E2 Commander Performance Dept.

Kloten, 22.11.2023



CAT aircraft at airshows



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Legal Requirements:

Flying Displays are not regulated by EASA except certain aspects regarding NCO/NCC/SPO Rules, how to do a risk assessment and the situation regarding passengers and task specialists – see also: <https://www.easa.europa.eu/en/faq/22599>

Switzerland:

We request detailed **concepts and calculations**, mandatory **simulator training**, **formation flight experience** also from the lead aircraft (normally ex military trained pilot in the airliner cockpit), **risk assessment** and **emergency procedures**, no passengers except additional crew as approved by the authority, **briefings** and **airspace reservations**.

In Switzerland we apply very similar rules as the UK CAA in their [CAP 403](#) published in Chapter 6.55:



CAT aircraft at airshows

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Displays by Commercial Air Transport (CAT) operators

- 6.55 Displays by **CAT** operators i.e. large transport aircraft, will normally be conducted under an exemption from the need to hold a DA, issued by the [CAA GA Unit](#).
- 6.56 The requested display profile is to be submitted in advance to both the [CAA GA Unit](#) (by submitting form [SRG 1328](#)) and the assigned CAA Flight Operations Inspector (FOI) in the form of a safety case⁴⁷.
- 6.57 Following review of the submitted information, the CAA will decide what level of evaluation is required and agree, with the aircraft operator / pilot, a suitably qualified and experienced person (SQEP) to act as Evaluation Supervisor⁴⁸.



UK CAA [CAP 403](#) in Chapter 6.55:

- 6.58 If the submitted information and evaluation (where required) is acceptable, the [CAA GA Unit](#) will issue a DA Exemption.
- 6.59 Passengers are not to be carried during a Flying Display by **CAT** operators. However, additional flight crew or specialist maintenance personnel **may** be carried provided they are included in the safety case and accepted by the [CAA GA Unit](#).
- 6.60 Formation flights by large **CAT** aircraft will not normally be permitted but specific applications will be considered on their merits.
- 6.61 AOC Emergency Service companies **may** be issued with Exemptions from the requirement for the Pilot in Command to hold a DA in accordance with the provisions of Article 86 of the ANO. Before a DA Exemption can be considered for an AOC operator, the proposed Display Routine / Role Demonstration **must** be approved and recommended to the [CAA GA Unit](#) by the assigned CAA Flight Ops Inspector. The Display Routine / Role Demonstration **must** be included in the AOC Emergency Services Company Operations Manual. Confirmation that such an Exemption is held, and that any Display Routine / Role Demonstration performed at a public event will be carried out in accordance with the procedure contained within the Company Operations Manual **must** be obtained from the AOC Chief Pilot.



MINISTERIO
DE TRANSPORTES, MOVILIDAD
Y AGENDA URBANA




Airshows

European Airshow Regulators Meeting EARM, 22 November 2023

Gustavo CUEVAS
General Aviation Section

Regulatory framework

 RD 1919/2009 laying down the applicable requirements and administrative procedure for the authorization and conduct of civil airshows.



*Applicable to airshows by civil organizers with civil or civil-military aircraft.
Airshows with military aircraft by military organization is out of scope.*

Administrative procedure

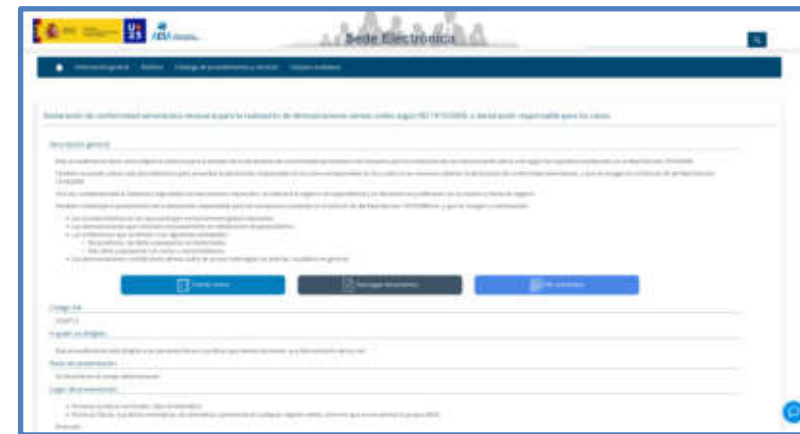
Authorization

Submission of the application form through the electronic office:

1. Proposal of the Director and Deputy Director
2. Airspace Coordination Form
3. Information form on facilities and services
4. Demonstration programme
5. List of participants according to aircraft category
6. Taxes

Declaration

- Events involving exclusively manned balloons.
- Airshows consisting exclusively of parachuting exhibitions.
- Exhibitions limited by the following activities:
 - Non-motorised skydiving and paragliding;
 - Delta wings and paragliding with motor or model aircraft.
- Restricted-access airshows not open to the general public.



- INFANTE DE ORLEANS FOUNDATION (FIO) MONTHLY
- THE WISE MEN ALARILLA
- MATAALLANA PARAMOTOR ENCOUNTER
- MOTRIL INTERNATIONAL AIRSHOW
- NEVALUZ PARAMOTOR FLIGHT
- PMR RED BULL MUTUA MADRID OPEN
- LA BALLENA ALEGRE PARAGLIDING EXHIBITION
- GIJÓN INTERNATIONAL AIRSHOW
- VEJER PARAGLIDING CLUB
- TORRE DEL MAR INTERNATIONAL AIRSHOW
- RED ARROW AIRSHOW MENORCA
- FORMULA 1 RED BULL SHOW RUN MADRID
- ACROSHOW 2023 SOLLER MALLORCA
- TARMAC TERUEL
- AIRBUS FAMILY DAY
- AMERICAN'S CUP TAKES OFF
- LAKE RESORT EXHIBITION MENORCA OCTOBER FESTIVAL
- UCAM PARAMOTOR FLIGHT
- CASA 100 ANNIVERSARY AIRBUS FEST
- MODIFICATIONS APPLICATIONS FIO AIRSHOWS



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www.seguridadaerea.gob.es



Airshows in Poland

6th EARM

Short summary



Civil
Aviation
Authority

POLAND

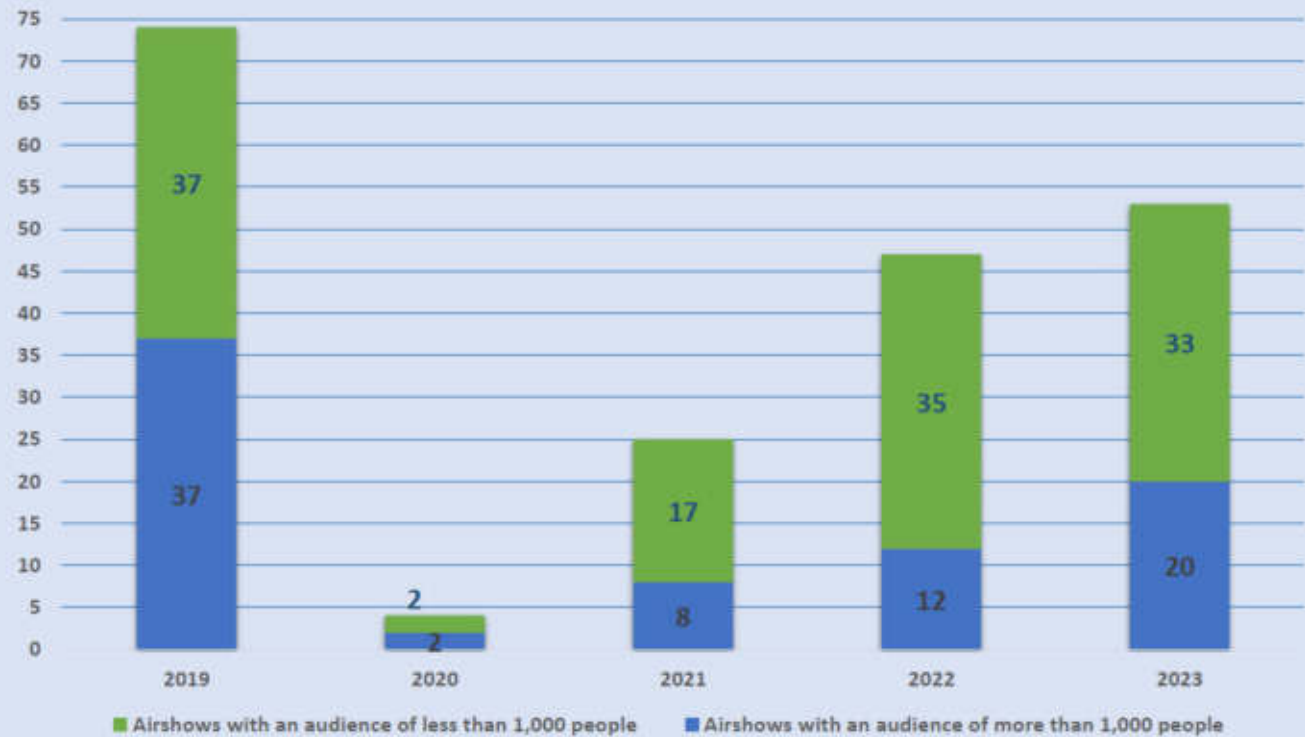
22.11.2023

Airshows in Poland



Number of Airshows

Airshows in Poland in 2019-2023



SAFETY EARM

- Inputs from all regulators needed (report, report, report)
- Share your experience and help us to avoid the same «mistakes»
- No blaming, just culture, learning from incidents/accidents



Feedback 2023 (Paul Sall CAA UK): CAA UK Post-Display Season Symposium





Post Display Season Symposium 2023



Welcome



Post Display Season Symposium 2023

**Paul Sall – Air Display Lead
CAA GA & RPAS Unit**

DS23 - CAA Outbrief

Fast Facts & Figures

Total FDDs 86
Total DAEs 50
Total DA Pilots
254
TYROS????

6 Mechanical
malfunctions

5 Airspace infringements

2 Drone activity/
infringements



3  calls

19 'too close' calls
18 'too low' calls
14 'terminate' calls



44% Late applications

6% Applications <7 days

100% Post Event
Reports Received

27 of 27 Assurance visits

16 of 19 DAE Oversight
Visits completed

Stop Calls

- All investigated and DA returned generally within 7 days.
 - *No supporting trends identified from FDD feedback forms (SRG1305) at previous events.*
 - *Investigations carried out using Baines Simmons FAiR System.*

DS23 - CAA Outbrief

Too Close

19 calls

A reduction again from DS22, the majority of occurrences due to an on-crowd wind

In some instances:

not highlighted or briefed by the FDD especially at off - airfield venues.

DS23 - CAA Outbrief

Too Low

18 calls

- *A small reduction from last year, many of them flirting with the minimum heights.*
- *There were no repeats during the performance from the pilots after they had been given the warning*

A reminder:

‘the minimum is not a target’

DS23 - CAA Outbrief

Terminate

14 calls

A broad range of reasons for calls:

- *Self terminates*
- *Weather*
- *Low Light*
- *Time*
- *Airspace*
- *Pedestrian encroachment*
- *Engine misfire*
- *Breakdown of SA*

Terminate can be called for a variety of reasons – don't be afraid to use it



2023 Flying Display Safety Survey



Safety indicators used to:

monitor, identify and analyse contributing or causal factors for occurrences during civil flying displays

and, if necessary,

to review or introduce additional safety mitigations.





2023 Flying Display Safety Survey



- ✓ **17 Questions**
- ✓ **4th meaningful year (Covid)**
- ✓ **48 respondents to date (interim data)**



2023 Flying Display Safety Survey

The 'So what'

- Appropriate briefings/debriefings for the activity.
- Warning Calls should be considered normal practice for Safety and Learning.
- Review and address risks emerging
- Don't Hesitate to Consult with the CAA/MAA.



DS23 - FDFG Outbrief

Flying Display Focus Group

Aim: To assist the GA Unit in the development of Flying Display policies, procedures and guidance in order that due attention is given to the areas of interest or concern in a collective effort to maintain and improve safety at Flying Displays, for Flying Display participants and the general public.

Make-up: Currently 40 invited members, drawn from all stakeholders in the air display community (FDDs, FCC, DAEs, DAs, BADA, MAA).

Two FDFG Meetings held in 2023: May and September

DS23 - FDFG Outbrief

May 2023 Discussion Points:

1. The criteria driving the decisions to carry out assurance visits at flying displays.
2. The limitation of a DA being renewed no more than twice consecutively by the same DAE.
3. **The SRG1303B form.**
4. Temporary DA validations
5. Overflight of crowds at flying displays.
6. Display category for electric aircraft.
7. Minimum crew in display aircraft.
8. Human Factors in Air Displays course.
9. On-site display practices on the day of an event.
10. Article 86 Long Term Permission project.
11. ROCC.
12. Stakeholder feedback on CAA assurance visits to flying displays.
13. FDD briefings to DAs.



QUESTIONS

Incident/Accident Overview 2023

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| | | | | | | | |
|----|------------|----------------|---------------|----------|---|----------------|-------------|
| 1 | 04. Mär 23 | MIG-15 | Vintage | Airshow | | Fairhope | USA |
| 2 | 06. Apr 23 | Van's RV-7A | Light Utility | Airshow | 1 | Allen Aeroclub | Argentina |
| 3 | 27. Apr 23 | PZL-130 | Trainer Prop | Airshow | | Radom | Poland |
| 4 | 20. Mai 23 | F-18 | Fighter Jet | Airshow | 1 | Zaragoza | Spain |
| 5 | 15. Jun 23 | F-5 | Fighter Jet | Display | | Cham | Switzerland |
| 6 | 30. Jun 23 | Super Decathlo | Light Utility | Display | | Charata | Argentina |
| 7 | 02. Jul 23 | T-27 Tucano | Trainer Prop | Display | | Apiay | Colombia |
| 8 | 02. Jul 23 | Su-30 | Fighter Jet | Flypast | 1 | Paracotos | Venezuela |
| 9 | 14. Aug 23 | Mig-23 | Fighter Jet | Display | 1 | Willow Run | USA |
| 10 | 31. Aug 23 | F-5 | Fighter Jet | Display | | Radom | Poland |
| 11 | 10. Sep 23 | T-28 | Vintage | Display | 1 | Börgönd | Hungary |
| 12 | 16. Sep 23 | M-339 | Trainer Jet | Display | | Torino | Italy |
| 13 | 17. Sep 23 | T-6 | Vintage | Air Race | | Reno | USA |
| 14 | 12. Oct 23 | L-29 Delfin | Trainer Jet | Display | 1 | Villa Canas | Argentina |

| | | |
|---------------|----------------------|----|
| Latest Update | 2023 Total Accidents | 14 |
| 12. Nov 23 | FIT | 6 |
| | MAC | 4 |
| | LOC | 1 |
| | Bird Strike | 2 |
| | Structural | 1 |
| | Mechanical | 1 |
| | Pilot Killed | 6 |
| | Pilot Injured | 4 |
| | Pax Injured | 1 |
| | Public Killed | 2 |
| | Public Injured | 3 |





Swiss Air Force will fly with sustainable fuel

The Swiss Armed Forces plans to make a contribution to climate protection by using a mixture containing 10 percent of a sustainable source that was first used in September 2023 during the Patrouille Suisse flight display for the 75th anniversary of Zurich Airport.

How Sustainable Aviation Fuel works





SWI swissinfo.ch

Swiss perspectives in 10 languages

Climate change >

Swiss air force sets 50% sustainable fuel goal



Technical adjustments to Air Force aircraft or fuel depots are not required for a blend containing up to 50 percent SAF. Compared to fossil fuels, SAF fuels contain less sulfur, less aromatic hydrocarbon blends, and allow an 80 percent reduction in fossil CO₂ emissions. The sustainable fuel purchased by the Swiss Army was produced by a certified process from organic waste such as used food oil and animal fats.



Information and Registration:

[NEXT CONVENTION 2024](#) | [Eac New \(europeanairshow.org\)](#)



CONVENTION HIGHLIGHTS



- 25 nations represented
- 21 Military Solo Display Pilots present
- 5 National Display Teams attending
- 7 National Aviation Authorities present
- Largest FDD Safety Seminar so far held
- Sustainability Working Group Established
- 163 Attendees drawn from all areas of the airshow world.
- 13 Presentations on current issues and future developments in the airshow world.
- First Formation Safety Seminar held in person.
- Great Networking Opportunities facilitated





Seminars

specialist meetings looking at key
issues and training



Presentations

from around the globe on relevant
topics from the industry.



Networking

as important as anything else at the
convention! Meet, Greet and Engage.



Gala Dinner

Celebrating, Dining and Networking



Annual Awards

recognising our community



Culture

Mix Business and Pleasure

AOB / DISCUSSION

Topics: open



Save the date / next meeting



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- Next virtual EARM: invitation to follow

Wednesday, 24 April 2024, 1400 CET

(2024 pre-season display briefing)

| April 2024 | | | | | | |
|------------|----|----|-----------|----|----|----|
| S | M | T | W | T | F | S |
| | 1 | 2 | 3 | 4 | 5 | 6 |
| 7 | 8 | 9 | 10 | 11 | 12 | 13 |
| 14 | 15 | 16 | 17 | 18 | 19 | 20 |
| 21 | 22 | 23 | 24 | 25 | 26 | 27 |
| 28 | 29 | 30 | | | | |

Wednesday, Apr 24th 2024



Thank you!

