



EASA
European Aviation Safety Agency

Geo-limitation Task Force (GTF): *Study and recommendations regarding drone geo-limitations*

GTF team

Workshop on “*Prototype Regulation for
Open and Specific UAS Operations*”

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Motivation

- “Drone” proliferation is growing parallel to a high rate of occurrence reports, which is causing social alarm ...

Drones in four near-misses at major UK airports, air investigators reveal

Los Angeles Times

MARCH 19, 2016, 8:57 AM

Lufthansa jet and drone nearly collide near LAX

Seconds from disaster: Lufthansa passenger plane in near-miss with THREE drones during landing

- The near-miss is said to have happened on Saturday at Bilbao airport
- Incident was reported by A320 Lufthansa pilots flying in from Frankfurt
- The drones were spotted by the crew at 2,950ft within protected air space



Drone Knocks Woman Unconscious at Seattle Pride Parade

Europe faces up to flight safety threat posed by drones

Drone safety fears after chopper near miss



Motivation

- Most reports correspond to UAS OPS under “OPEN cat.”



.OPEN:

.Low risk

- Competent Authority notified by Member States; no-pre approval envisaged

- Limitations** (25 kg; Visual line of sight (VLOS), **Maximum Altitude**, **no drone zones**, **limited drone zones**)

- Rules: no flight over crowds, pilot competence

- Use of technology: 4 Sub-categories

- Addressed by prototype regulation**



.SPECIFIC

.Increased risk

- Approved by NAA possibly supported by accredited QE based on Specific Operation Risk assessment (SORA)

- Standard scenarios-with possibly declaration

- Approved operator with privileges

- Addressed by prototype regulation**



.CERTIFIED

- Regulatory regime similar to manned aviation

- Certified operations to be defined by implementing rules

- Pending criteria definition, EASA accepts application in its present remit

- Some systems (Datalink, Detect and Avoid, ...) may receive an independent approval

- Not addressed by prototype regulation**

- OPEN cat. is “low risk” as long as **limitations are respected!**



GTF: Objectives and Scope

- To address more swiftly this concern, a Task Force composed of experts from MS (Finland, France, UK) and EASA was launched in April 2016, **focusing on “geo-limitations”¹** and aiming at:
 - Reviewing existing geo-limitations **practices and technologies**
 - Gathering the views of worldwide **key stakeholders**, and
 - Providing **recommendations** aimed to decide whether **unintended** entry into restricted areas should be strictly regulated, through **geographical and/or performance limitations**
- Focus on UAS in the “Open” category and on the risk of conflict with other airspace users, in particular, **commercial air transportation (CAT) → Sensitive areas: airports**

1. Defined by GTF as “any limitation applied to a UAS to constrain the UA access to or exit from a defined zone or airspace volume”



GTF: Working method

- Analysis of available information → **consultation** of a wide range of (global) **stakeholders** involved in UAS manufacturing, operation and regulation via:
 - Survey **questionnaire** addressing a wide variety of stakeholders (~ 120 stakeholders addressed, 90 answered)
 - Dedicated **meetings** with main Industry representatives (e.g. Drone Manufacturers Alliance Europe – incl. Air map, DJI, Parrot – , Unifly and others)
- A **report** was produced including information gathered, analysis, conclusions and recommendations. Released on October 6, 2016 (available on EASA website ¹).

1. <https://www.easa.europa.eu/document-library/general-publications/study-and-recommendations-regarding-unmanned-aircraft-system>



GTF: Main conclusions and recommendations

- “Geo-limitation” solutions cannot be expected to prevent malevolent behaviour → TF focused on the prevention of **unintentional breach of limits**.
- Main elements of “geo-limitations” and their implementation:
 - Provision to UAS operators of **up to date, accurate and easily understandable information**
 - Inclusion of UAS performance limitations, e.g. **height** / altitude limitation and “**range**”¹ **limitation**
 - UAS designs to include **built-in features to warn** the remote pilot on “geo-limitations”
 - UAS designs to include “**geo-fencing**”²

1. Defined by GTF as “horizontal distance between the UA and the remote pilot station / take-off point”

2. Defined by GTF as “function to make a UAS comply automatically with one or more geo-limitations based on geo-fences”



GTF: Main conclusions and recommendations

- Member States should use the **concept of Prohibited and Restricted zones**, as defined in the rules of the air, to define their sensitive zones and associated geo-limitations.
- Preferred **performance limitations** are on **height** and “**range**”.
- If automatic “**geo-limitation**” functions (i.e. “geo-fencing”, “performance limitation functions”) are mandated, they should apply to all **products of a given class** so as **not to exclude** the majority of UAS sold for **recreational use**.
- Keep **regulations technology-neutral** (“performance based” as much as possible), allowing industry to generate solutions and propose any necessary technology standards.



GTF: Main conclusions and recommendations

- If **un-locking of geo-limitations** used by automatic functions is allowed for certain UAS operators, the use of **“hard/soft-locking”** geo-limitations and related un-locking processes should be considered.
- **Retrofitting should not be mandated**, considering the relatively **short average lifetime** of drone products and **difficulties** (when not impossibility) to implement it, instead, further **operational limitations** should be considered where appropriate.
- Current **rights for model aircraft operations** should be **grandfathered** and **no geo-limitation functions** to be required (not feasible in most cases)



GTF: Main conclusions and recommendations

- Regarding **standards**, the Task Force identified a number of “geo-limitation” related aspects deemed as candidate for standardization.
- Any standards must be a good fit to the characteristics of the small UAS business → **achieve tangible results** that can be implemented by the small UAS industry in a **short timeframe**.
- For follow-on activities on “Geo-limitation” aspects the Task Force recommended considering:
 - **JARUS** → develop related concepts from a **regulatory perspective**
 - **EUROCAE** → lead in coord. with ESO activities on **industry stds**.



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Thank you for your attention!

Questions?

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