

When Regulations Crave Innovation: Neue UAS-Regularien die innovativer Lösungen bedürfen

**Drohnenforum Österreich | Drone Forum Austria 2025
Wien | Vienna, BMK (23rd January 2025)**

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(1)

AAD Vision & Mission

Austrian Associations for Drones (AAD)

- The **first association particularly** for the Austrian Drone Community
- Offers **Networking, Knowledge Exchange and Interest Representation**
- **Independent** as financed only by its **around 35 members**
- **Member in relevant international associations (JEDA, UAV-DACH)**
- **Represented in international bodies (EASA, JARUS-ISB, EUSCG)**
- **Constant dialogue with Austrian authorities (BMK, FFG, ACG, MOD, etc.)**
- **Quarterly networking meetings of the Austrian UAS-Community** (OEMs, related Operators, Service Provider, Research etc.)
- **Regular Newsletter** (mostly monthly) with current news and infos
- Since 2023 also own training programme
(**e.g. EU drone regulations including SORA practice in German**)
- See also the **Website of AAD** and our profile on **LinkedIn**

austro
CONTROL

SORA

ACG | DCC



Ministry BMK|FFG – Research Funding Team



EASA
IAM Forum



JEDA @ ADW

EASA U-Space
Team



(2)

The Importancy of Regulations for the (EU) Drone Ecosystem

Regulations are **THE** key issue for many OPs – also on EUropean level Partly „moving targets“ with permanent issues for business cases

- e.g. **SORA (risk analysis)**
 - Lots of „**interpretation**“ in daily use by CAAs
 - Big national **implementation differences** (MS)
 - EASA **SORA 2.5** soon there, SORA 3.0 (?)
- e.g. **CE-marking / Remote-ID** → EU triggered 01.01.2024, but still open issues
- e.g. **VTOL, flying taxis, MDS** → EU/EASA released **new regulations** Q2/2024
 - But important details open issues (**AMC/GM**)
- e.g. **U-Space/UTM** → Triggered January 2023 but still an enigma
- e.g. **Austrian LVR**
 - Austrian „Rules of the Air“ **still** not updated
 - Heliport vs. Drone → perimeter, competencies
 - Formally no Geo-Zones (Art.15) in Austria yet!

(3)

When Regulations Crave Innovation

Relevant Examples

Sense & Avoid | Detect & Avoid | ACAS-TCAS for Drones

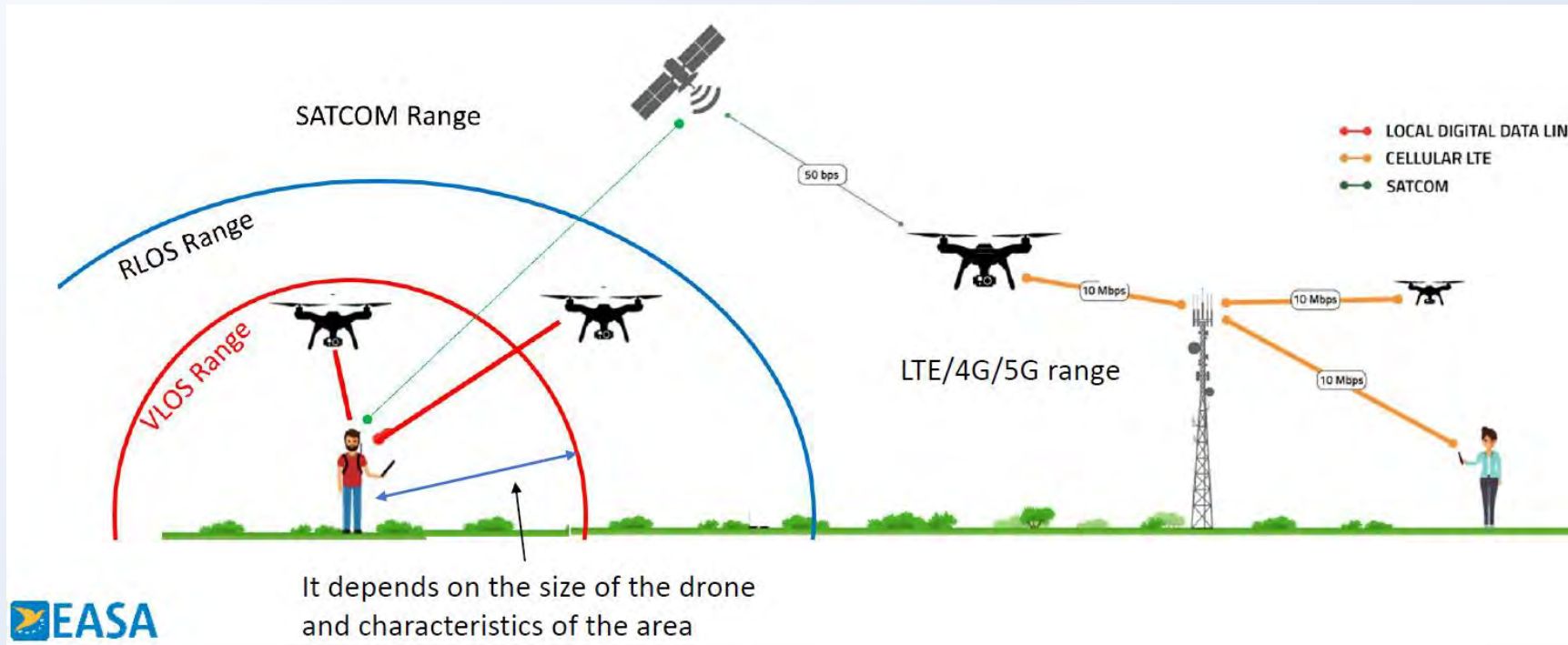
Urgently needed for

- Any kind of serious **long-range BVLOS operations (on-board)**
- Especially needed for **SORA: Step 6** (Tactical Air Risk Mitigation)
- Especially in **uncontrolled Airspace like Class G** („VFR“)
- **In U-Space** „ground based“ solutions under development | Future UTM

Challenges

- **Weight, performance, energy consumption of sensors** → Miniaturisation
- ACAS/TCAS: Certified „smaller“ **alternatives to ADS-B** → **eConspicuity ?**
- **Certified „logic“** (automated system and/or Artificial Intelligence) for:
 - a) Obstacle Recognition*
 - b) Safety-critical decision making*
- **Timeframe: min. 3-5 years**
- Forerunners: Automotive Industry, Assistance Systems & Autopilots

Communication – C2 & Datalink – eConspicuity



Urgently needed for

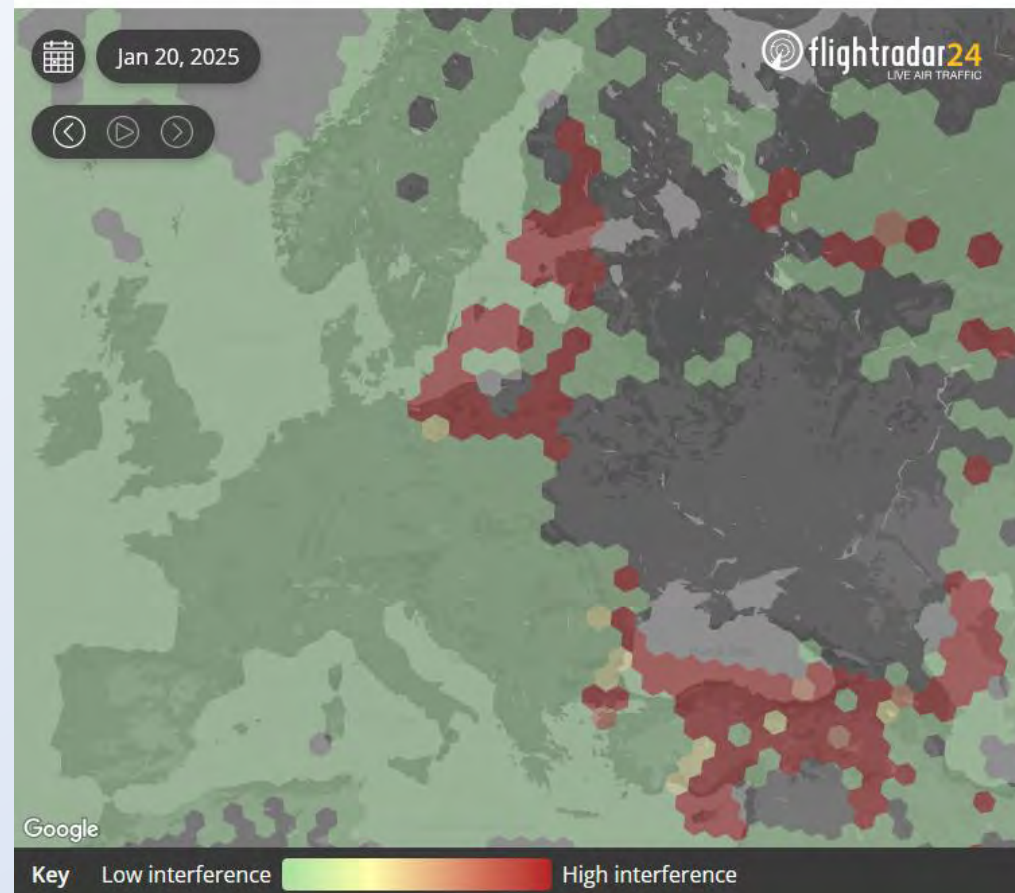
- Long-range BVLOS OPs
- U-Space / Future UTM
- eConspicuity

Challenges

- Limits of Mobile Networks
- Limits of SATCOM
- Alternatives ?
- SRD for eConspicuity
- Relais Stations

Position Data Accuracy – GNSS | GPS – Buffer Limits for Corridors

GPS jamming map



Urgently needed for

- Long-range BVLOS OPs
- U-Space / Future UTM
- eConspicuity

Challenges

- **GPS Accuracy:** $\pm 6-15m$
- **Jamming | Spoofing** e.g. RuZZias Hybrid EU War
- **Airspace Performance** vs. huge corridor buffers

Icing | All Weather Drones Certification Criteria vs. Manned Aviation



EASA Easy Access Rules for Unmanned Aircraft Systems

OSO number (in line with Annex E)		SAIL			
		I	II	III	IV
OSO#21	Operational procedures are defined, validated and adhered to	L	M	H	H
OSO#22	The remote crew is trained to identify critical environmental conditions and to avoid them	L	L	M	M
OSO#23	Environmental conditions for safe operations are defined, measurable and adhered to	L	L	M	M
OSO#24	UAS is designed and qualified for adverse environmental conditions	O	O	M	H

Table 6 — Recommended OSOs

Urgently needed for

- Certification of „All Weather Drones“
- Especially SORA: OSOs #23/#24
- Alpine Drone Operations / MDS

Challenges

- Not enough evidence, test data yet → IFIRE
- Performance unknown for various weathers
- Various forms of icing vs. manifold structural forms of drones | propulsion

U-Space | UTM

- **U-Space**: EASA urges industry to deliver missing standards → **WS 06/2023**
- **AMC/GM** still under „improvement“ because of missing standards
- **Previous examples (e.g. Communication/Link, Position Data, etc.) plus**
 - **Data exchange | Interfaces | Data model** (incl. roles, responsibilities)
 - **ATM ↔ UTM | eConspicuity (ADS-L via mobile, SRD, SATCOM?)**
 - **UTM Decision making**: (partly) automated ↔ autonomous (AI)



EASA is responsible of the harmonisation, the “Industry” of the standardisation

We need YOU to complement the U-space technical framework!

(or to propose concerted alternatives)



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Further Examples ...

- **SORA 2.5: Accurate & Up-to-date Population Density Data (Ground Risk)**
 - **Mobile Telecom Providers**

- **SORA Automatisation (Authorites & Applicants|Operators)**

- **Current Standard for Direct Remote-ID via WIFI | Bluetooth**
 - Need for improvement, current standard more „bridge technology“

- **Manifold safety issues coming up by EASA MOCs, e.g.:**
 - **FTS (Flight Termination Systems)**
 - **Parachutes**
 - **Standards for „safe“ development processes**

(4)

UAS Research Funding

The Importance of TAKE OFF
for Solid Innovation Made in Austria

**TAKE OFF currently
only funded till 2026**

→ Most usefull for innovation

≡ Federal Ministry
Republic of Austria
Climate Action, Environment,
Energy, Mobility,
Innovation and Technology



**AAD Research „ABC“
requested by BMK 2023**



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FTI-Schwerpunktthemen der österreichischen UAS-Community (April 2023)
Übergeordnetes Ziel: Drohnen als Vorreiter grüner | innovativer Technologien

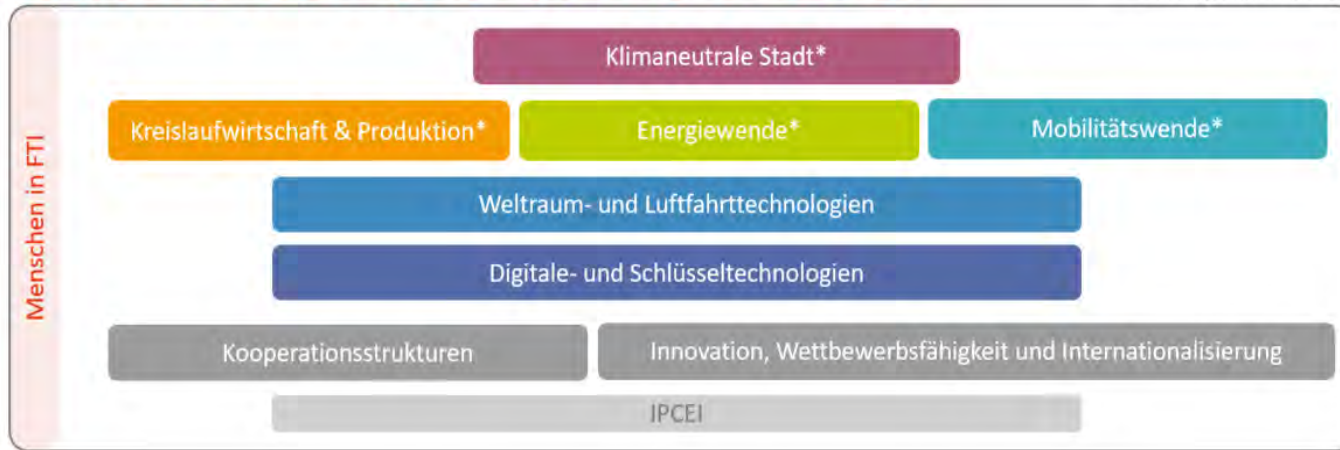
- **Alpine Drohnenanwendungen** (Katastrophenschutz, Naturgewalten wie Muren/Stürme, Vermissensuche, Lawinenschutz, Waldbrände usw.) samt zugehöriger Parallelthemen (siehe All-Weather-Drones, Vereisung, BOS-Drohnen, MDS, Schwerlastdrohnen usw.)
- **BVLOS-Einsätze** (Beyond Visual Line of Sight) auch über längere Strecken & Nachtflüge
- **C-UAS** (Counter UAS: Drohnenabwehr) mit allen zugehörigen „zivilen“ Teilsystemen wie Drohnerdetektion, UTM-Schnittstellen, Schnittstellen zu Registrierungsdaten usw.
- **Detect & Avoid bzw. Sense & Avoid (on-board)** inkl. aller zugehörigen Themen zur Automatisierung und Kollisionsvermeidung (leistungsfähige miniaturisierte, leichtgewichtige, verbrauchsarme Elektronik und Sensorik wie z.B. EO/IR/Radar) samt zugehöriger Regularienfragen. Finale Weiterentwicklung zum „Drohnen-TCAS“ bzw. „TCAS all inclusive“
- **Einsatzorganisations-Drohnen** (Einsätze von BOS wie Polizei, Feuerwehr, Rettungsdienste)
- **Flugtaxi** (sowohl intra-städtisch als auch innerstädtisch oder zum/vom Flughafen) samt zugehöriger Infrastrukturen (Start-/Landplätze, Korridore usw.)
- **Groß|Städte** als zukünftiges Einsatzgebiet vieler innovativer Drohnenanwendungen wie AAM/IAM/UAM samt aller Herausforderungen solch inner-städtischer Drohneneinsätze (luftfahrttechnisch, regulatorisch, bei der Bevölkerungsakzeptanz, Infrastruktur usw.)
- **Haus|Infrastruktur-Inspektionen** mit Drohnen (z.B. Schäden, Alterung, Abnutzung, Wärmeverluste) inkl. kritische Infrastrukturen (Energienetze, Staumauern, Verkehrswege)
- **Innovative Werkstoffe, Bauformen, Oberflächen** (Leichtbau, Energieeffizienz usw.) und vernetzte innovative Drohnenanwendungen (IAM laut EASA) samt Flottenmanagement
- **Jahreszeiten-unabhängige „All Weather Drones“** – Drohnen-Betrieb bei allen Wettern (inkl. aller verbundenen Fragen wie Vereisung, hoch-performante Antriebe, Akkuleistung usw.)
- **Künstliche Intelligenz (KI bzw. AI)** – Autonomie und Digitalisierung im Drohnen-Kontext (Steuerung on-board und am Boden, Digitales Luftverkehrsmanagement, Schwärme usw.)
- **Link(s) & Boden(kontroll)stationen (GCS)** – Uplink/Downlink, C2-Link (Command & Control) bis hin zum C3-Link (inkl. Data) sowie Boden(kontroll)stations-Design, Cyber Security und Bandbreiten/Frequenz-Themen bzw. alternative, leichtgewichtige, kostengünstige SATCOM-Lösungen oder SRD-Gesamtsysteme (für Bereiche ohne Mobil|Funkempfang)

Bankverbindung – UniCredit/Bank Austria
IBAN: AT 70 1200 0100 3796 5828
BIC: BKAUAT33

TEL: +43 1 533 09 73
UID: ATU 78697046
ZVR: 10 63 95 95 96

Fokus FFG: Die Themen der FFG FinV24-26

* Schwerpunktthemen





Thanks for your attention!

Further questions? ... Contact us!

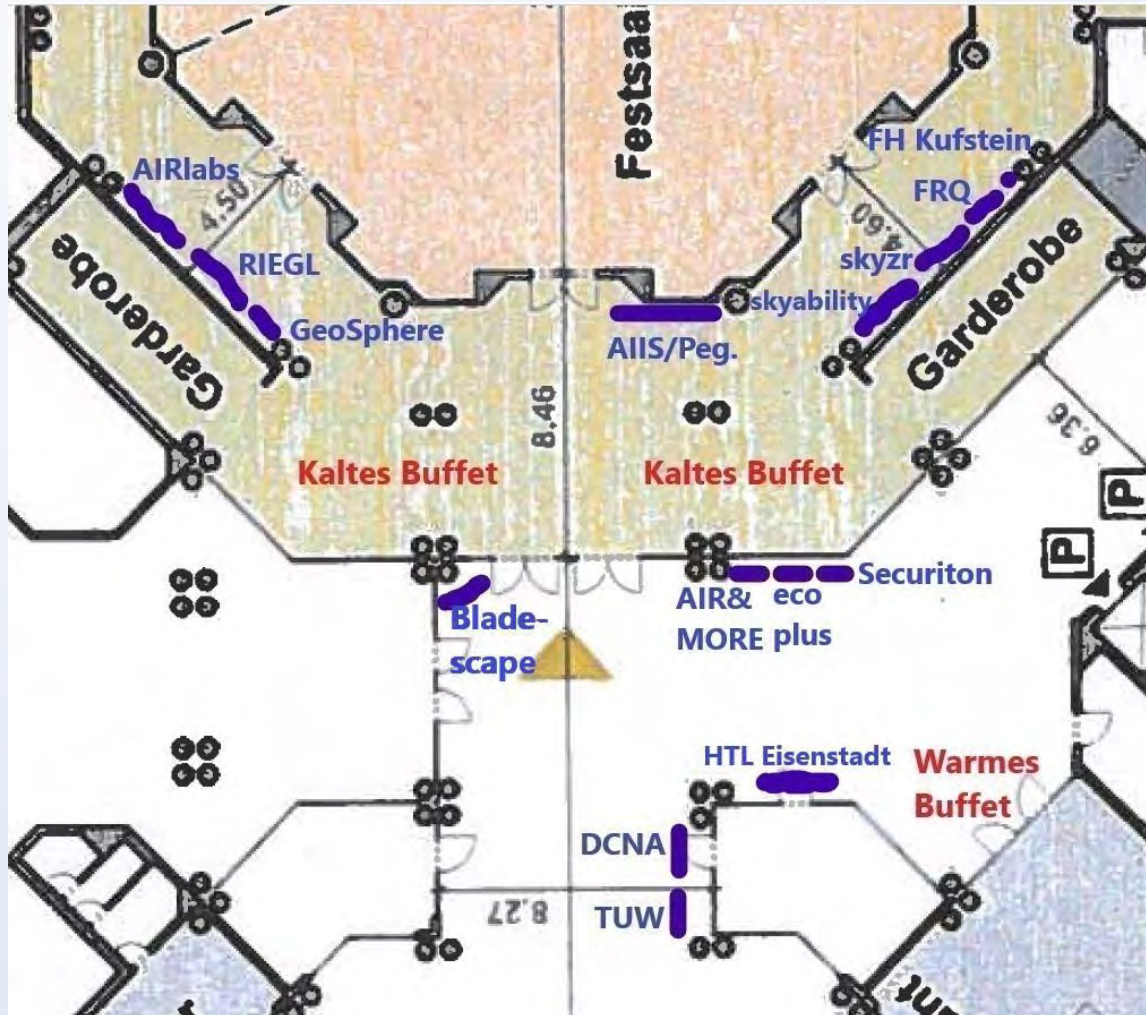


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Technologieausstellung



Warmes Buffet Powered by ...

- AAD – Austrian Association for Drones
- AIT – Austrian Institute of Technology
- AIR & MORE
- AIRlabs Austria
- BLADESCAPE
- ecoplus
- FH Kufstein
- FREQUENTIS
- GeoSphere AT
- HTL Eisenstadt
- PEGASUS R&D
- RIEGL
- SCHIEBEL
- SECURITON
- skyability
- skyzr