European Rail Infrastructure Managers EIM

CER
The Voice of European Railways

Position Paper

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Regulation of UAS operations over and along or crossing railway infrastructure

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Executive Summary

To maintain the current high level of safety for both railway and unmanned aircraft system (UAS) operations, while safely enabling and integrating unmanned aviation, CER and EIM call for the use of the 'geographical zone' tool at national level, rather than defining rules in the EASA aviation regulations to address generalized risks to railway infrastructure of different natures.

1. Introduction

With the introduction of the rules and procedures for the operation of unmanned aircraft (Implementing Regulation (EU) 2019/947) and its amendments, rules have been published that consider the specific characteristics of unmanned aircraft systems ('UAS') in order to achieve operations as safe as those of manned aviation. These rules also aim to be "proportionate to the nature and risk of the operation or activity and adapted to the operational characteristics of the unmanned aircraft concerned and the characteristics of the area of operation, such as population density, surface characteristics and the presence of buildings". As EASA sets rules for the safe operation of UAS, the regulation does not include specific considerations for ground infrastructure. Such rules are outside the scope of the Regulation (EU) 2019/947.

2. EASA Guidelines

In the non-binding "Guidelines for UAS operations in the open and specific category", Issue No. 2, published by EASA on 4 October 2024, EASA provides general advice for UAS operating in the "Open" category: Crossing with a minimum flight time over the railway; hovering and/or sustained flight over or along the railway needs to be coordinated with the railway operator(s); operations close to the railway should consider the '1:1 rule'. The guideline document states that member states may use geographical zones to address the risks associated to the overflight of moving vehicles, e.g. by introducing specific limitations or conditions for UAS operations over roads and railways. When a geographical zone exists, the restrictions and conditions introduced by it take precedence over the non-binding contents of the guideline document. Railway infrastructure (including tracks, stations, and depots) is inherently vulnerable to the safety risks posed by UAS operations, such as crashes, collisions, malfunction of safety-critical UAS components, and distraction of safety-critical railway staff. Among others, railway infrastructure is considered as critical infrastructure in the EU under Directive 2022/2557. The exposure, probability, and severity of consequences of hazards caused by the operation of UAS over and along or by crossing railway infrastructure (i.e. the risk) depend on various operational parameters such as the number of tracks, rail traffic density, train speed, significance for national and international transport and logistics, the role of the section in civil/military supply chains, adjacent and supporting infrastructure (tunnels, bridges, power lines) or types of trains in operation. The operational risk for the infrastructure manager is also influenced by the type of railway network and the potential consequences of the closure of a track or other parts of the railway infrastructure.

3. The role of the National Authorities

With this non-exhaustive list of influencing parameters, CER and EIM are of the opinion that a useful regulation that meets the specific needs of the railway infrastructure needs to be assessed individually by Member States and the railway operators/infrastructure managers. For this purpose, EASA already provides a powerful tool for Member States with Regulation (EU) 2019/947 Art. 15: to define geographical zones "for safety, security, privacy, or environmental reasons. Member States may (a) prohibit certain or all UAS operations, request particular conditions for certain or all UAS operations or require a prior flight authorization for certain or all UAS operations. […]". This is already applied for railways by certain Member States, e.g. Germany, Spain or Czech Republic.

By assessing the individual risks of UAS operations over and along or by crossing railway infrastructure, Member States' railway operators and infrastructure managers can individually define network-specific geographical zones with operational rules and/or approval requirements to be published by their competent authority. This will allow direct

action at national level to address the actual risk that UAS operations pose to the Member States' rail network. To maintain the current high level of safety for both railway and UAS operations, while safely enabling and integrating unmanned aviation, CER and EIM call for the use of the 'geographical zone' tool at national level — supported by safety promotion and communication initiatives by railway operators/infrastructure managers — rather than defining rules in the EASA aviation regulations to address generalized risks to railway infrastructure of different natures.

4. Cooperation with European authorities

CER and EIM support to enable local and long-distance UAS operations for all operators. CER and EIM are committed to working with the European Commission (DG MOVE) and its associated agencies EASA and ERA to discuss the details of implementing the position set out in this paper and to communicate with the relevant national authorities and railway operators/infrastructure managers to promote this approach.