Ensuring operational continuity at Luxembourg Airport with Vaisala's Dual RVR and Backup Weather System

VAISALA

Case Study

The client:

ANA Luxemburg

Vaisala solution:

Vaisala AviMet Airport Weather Observing System (AWOS), Vaisala AviMet Runway Visual Range System with Vaisala Transmissometer and Forward Scatter Sensors

Luxembourg Airport is one of Europe's leading cargo hubs, serving as a critical transshipment point for international air freight.

With its extended runway and high-volume operations, the airport requires robust, reliable weather and visibility monitoring systems to maintain continuous operations and ensure strict compliance with aviation safety regulations.

For many years, the airport relied on a single AWOS and RVR system. When operational issues emerged and the system could no longer meet ICAO requirements, Luxembourg Airport turned to Vaisala for a resilient, fully redundant weather and visibility monitoring solution.

That initial project marked the beginning of a long-term partnership. After the successful delivery of the primary RVR and backup system in 2021, the airport expanded the collaboration in 2023 by upgrading its weather station network with advanced AWS810 stations and WID511 wind displays. Most recently, Luxembourg Airport chose to replace its legacy AWOS software with Vaisala's AviMet suite - further strengthening its confidence in Vaisala's integrated approach to aviation weather.

THE CHALLENGE:

The airport faced a critical operational vulnerability: a single point of failure in weather monitoring. If the primary RVR and weather system went down, the airport would be unable to operate according to established procedures, creating compliance and safety risks, and costly delays. The customer also required a solution that was flexible enough to meet their specific technical and regulatory requirements rather than forcing them into a standardized, one-size-fits-all approach.

THE APPROACH:

Vaisala provided a comprehensive dual-system architecture tailored to Luxembourg Airport's evolving needs.

The primary RVR system features four measurement points covering the airport's extended runway, using Vaisala LT31 transmissometers alongside forward-scatter sensors to deliver redundant visibility measurements for greater accuracy and resilience. A dedicated secondary RVR and weather system runs in parallel to ensure continuous monitoring and uninterrupted data availability during primary-system interruptions or maintenance.

To further enhance weather monitoring capabilities, the airport's primary weather station infrastructure was upgraded with AWS810 weather stations integrated with WID511 Wind panel displays, providing real-time wind and environmental data essential for safe airport operations. These systems were designed to integrate seamlessly with the existing IT environment (including Linux-based systems).

Vaisala delivered end-to-end project services - full installation, factory acceptance testing (FAT), site acceptance testing (SAT), staff training, and ongoing supervision - to ensure smooth deployment and effective handover across all project phases.

Why Vaisala?

For 50 years, Vaisala has been a pioneer in aviation weather technology, ensuring that every measure is taken for unparalleled safety, efficiency, and sustainability.

Our gold standard suite of solutions is trusted in more than 170 countries and over 2000 airports globally. In fact, every commercial flight around the world will use weather observations produced by Vaisala equipment or forecasts driven by our sensor measurements at some point in their journey.

With a commitment to constantly evolving our portfolio, Vaisala remains at the forefront of the industry, continuously exploring new horizons.

THE RESULTS:

Operational peace of mind and regulatory compliance.

Deploying Vaisala's dual-system solution delivered measurable operational and compliance benefits for Luxembourg Airport. The implementation of dual-system redundancy has virtually eliminated downtime risk, enabling continuous weather and visibility monitoring that keeps the airport operating safely at all times. The solution achieves full compliance with ICAO standards and all relevant international aviation meteorological requirements, positioning the airport as a leader in regulatory adherence.

The project execution itself demonstrated Vaisala's efficiency and long-term partnership commitment. From the initial 2021 RVR deployment through the 2023 weather station modernization and continuing into the current AWOS software transition, Vaisala has delivered swift and professional project management across multiple phases. The dedicated backup system provides true operational peace of mind, ensuring airport operations can continue uninterrupted during maintenance windows or unexpected primary-system issues - a critical advantage that eliminated the vulnerability that initially drove the partnership.

The sustained and expanding relationship between Luxembourg Airport and Vaisala speaks volumes about customer satisfaction and product reliability. The airport's decision to progressively add Vaisala systems - from backup RVR infrastructure, to modern weather stations, and now to the AviMet software suite - demonstrates growing trust in Vaisala's ability to address the complex, interconnected challenges facing modern international airports. This evolution from hardware-only solutions to comprehensive integrated systems showcases Vaisala's deep understanding of aviation meteorology and our commitment to continuous modernization. The Luxembourg Airport case now serves as a model for how sustained partnerships and advanced meteorological solutions can provide the resilience, flexibility, and confidence that Europe's most demanding aviation hubs require.

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