



Case Study

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Intelligent testing for multiple markets

Mazda wanted to ensure the reliability of its newly developed intelligent speed assist system, according to (EU) 2021/1958, and gain type approval for the European Union efficiently. TÜV SÜD developed a sophisticated test programme that provided Mazda with a seamless customer journey, by managing the entire test execution process for market access to several EU Member States.



Overview

Client name	Mazda
Industry	Automotive industry
Profile	Mazda manufactures and sells passenger cars across the world
Business challenge	Mazda faced the challenge of complying with mandatory regulations for its intelligent speed assistance system to enable market access to 27 EU Member States. It approached TÜV SÜD to test its system performance in different EU countries according to (EU) 2021/1958.
Our solution	TÜV SÜD managed the entire test execution process and developed a tailored test setup. This included Controller Area Network (CAN) data and video recorders, as well as a real-time evaluation algorithm, which allowed the flexible integration of various country-specific traffic regulations into the test process.
Business benefits	TÜV SÜD's highly flexible and innovative approach streamlined the test process, validating the reliability of Mazda's intelligent speed assist system for use on road infrastructures across all EU Member States, thereby increasing project efficiency and reducing time to market.

Business Challenge

Since July 2022 it has been mandatory to equip new vehicle types with an intelligent speed assist system that warns the driver when the vehicle exceeds the set limit. The system notifies the driver by using the display and a warning sound, prompting them to slow down.

To ensure seamless access to the European market and gain approval for its intelligent speed assist system, Mazda needed to provide evidence that its system could achieve a specific traffic sign detection rate across all European countries, in compliance with (EU) 2021/1958. This regulation stipulates the specific test procedures and technical requirements for the type approval of vehicles' intelligent speed assist systems, and for the type approval of those systems as separate technical units.

The required type approval test mandates one physical validation test in one country. The compliance with other country regulations must be proven by the manufacturer itself. Mazda decided to partner with TÜV SÜD to ensure the highest integrity level for system



performance evidence. As a nominated Technical Service, TÜV SÜD used the most stringent type approval test standards to validate Mazda's intelligent speed assist system across various EU Member States in a single project, confirming full compliance within the scope of (EU) 2021/1958.

TÜV SÜD's solution

TÜV SÜD's extensive project experience and the in-depth know-how of its test engineers meant it could address Mazda's challenges by developing a tailored test setup. The advanced test setup included a real-time recording of selected CAN signals, video recorders, and real-time evaluation of the system performance, which enabled a high level of flexibility. As it was a portable system, the test setup could be seamlessly adapted in the vehicle under test to meet different country requirements, thereby ensuring test efficiency and accuracy.

TÜV SÜD's experts managed the entire test execution process, from vehicle preparation to test report generation, tailoring it to Mazda's specific needs. The video recorder replicated and recorded the driver's view, allowing TÜV SÜD to assess traffic sign detection levels and support Mazda with root cause analysis for wrong or missed detections. In addition, the CAN reproduced the communication between the different Electronic Control Units (ECUs) within the vehicle, allowing TÜV SÜD to collect additional vehicle data in real-time. This provided Mazda with further insights into the system's behaviour. Initially, the test initiative started in the Czech Republic, while the system is currently being tested in other European Countries to prove system performance according to their local requirements. Here TÜV SÜD relies on its various regional test clusters which ensure testing capabilities through strong partnerships with proving grounds (e. g. ZalaZONE, Segula, ADAC) or its own proving ground (e.g. in Czech Republic near Prague).

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Business benefits

TÜV SÜD's advanced test setup, according to (EU) 2021/1958 regulation, validated Mazda's intelligent speed assist system under homologation conditions applicable for all EU Member States. As the test equipment could be flexibly attached to vehicles, a high level of test efficiency and accuracy was ensured.

This highly sophisticated test setup not only collects and delivers test data, it also provides supplementary vehicle and environmental conditions data in real-time. This additional information gave Mazda further insight into the system's behaviour so that the R&D team could identify further potential to improve system performance.

TÜV SÜD's customer-tailored solution enabled Mazda to gain type approval for its intelligent speed assist system for various countries at the same time, optimising time-to-market efficiencies.

Oliver Gerhold, Team Leader Assist System Development, Mazda Motor Europe

“TÜV SÜD's global test capabilities and innate market understanding have helped us to gain future insight into our product development, going beyond minimum regulatory requirements to ensure that our intelligent speed assist system operates seamlessly across all EU states and on every type of road infrastructure. Throughout the test process TÜV SÜD demonstrated their ability to match our individual business needs and test requirements. Their highly experienced test engineers demonstrated an in-depth understanding of how to optimise testing procedures to ensure compliance with multiple markets, thereby increasing our efficiency.”

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TÜV SÜD is a trusted partner of choice for safety, security and sustainability solutions. It specialises in testing, certification, auditing and advisory services. Since 1866, the company has remained committed to its purpose of enabling progress by protecting people, the environment and assets from technology-related risks. Through more than 26,000 employees across over 1,000 locations, it adds value to customers and partners by enabling market access and managing risks. By anticipating technological developments and facilitating change, TÜV SÜD inspires trust in a physical and digital world to create a safer and and more sustainable future.