

Alstom conducts the first ETCS System Compatibility (ESC) laboratory tests in Katowice in Poland

- **Tests were conducted on a TRAXX vehicle equipped with the ETCS On-board system at Alstom's facility under the supervision of the Transport Certification Centre at the Warsaw University of Technology**
- **Organised under laboratory conditions to check the compatibility of the on-board equipment with the trackside ETCS system**

13 March 2024 – Alstom, global leader in smart and sustainable mobility, conducted the first ESC* tests in Poland on a TRAXX vehicle, equipped with the ETCS on-board system at the Alstom laboratory in Katowice. The testing environment consisted of real ERTMS devices, as well as base-layer system simulators and supporting tools. The process was carried out under the supervision of the Transport Certification Centre at the Warsaw University of Technology, based on scenarios developed by PKP Polskie Linie Kolejowe – Poland's railway infrastructure manager.

The aim of ESC tests is to demonstrate compatibility between the ETCS (European Train Control System) on-board systems, installed in the vehicle, and the trackside systems responsible for railway traffic control. This requirement applies to both rolling stock manufacturers and carriers. Tests are conducted for vehicles with ETCS devices that are about to enter service on a given line.

The process of preparing the ESC reference testing environment took over a year and comprised numerous stages, from conception to adapting the simulation environment and tools, culminating in obtaining an independent opinion validating the credibility of the environment. The accuracy of the test results was also endorsed by an independent certification body, the Transport Certification Centre (OCT).

“Conducting the first ESC tests in laboratory conditions in Poland marks a significant milestone in enhancing the certification of new vehicles equipped with ERTMS technology. It also addresses the expectations of Poland's Rail Transport Authority, which advocates for such tests, as well as meeting the needs of our partners, customers, and the entire industry,” declares Adam Juretko, the Managing Director of the Katowice plant of Alstom in Poland.

He adds, “The use of the Alstom laboratory for ESC tests brings many advantages, including significantly higher availability of the testing environment compared to an actual main railway line, repeatability of scenarios and the ability to analyse the system's behaviour in detail. For infrastructure managers and carriers, this testing method allows to avoid additional disruptions in planned train traffic. We plan to keep developing our ESC centre by adapting the testing environment for new types of ETCS on-board systems.”

* ETCS System Compatibility

The team, led by Aneta Pogorzelska-Szcześniak, M.Sc. Eng., took part in observing the preparation of the laboratory environment, test configuration and analysis of the work of all components in the complex test configuration in cooperation with the laboratory team. The conclusions from the observations provided sufficient evidence to confirm the correct operation of the test stand, which was reflected in an independent opinion confirming the credibility of the ESC test centre.

“OCT has operated as the certification body for 9 years, based on 30 years of research in the field of computer railway traffic control systems of the Faculty of Transport at the Warsaw University of Technology. Throughout this period, modelling and simulation of railway traffic control processes were part of our R&D work. Extensive experience allows us to consciously approach digital solutions that enable combining elements of real systems with the necessary simulation infrastructure allowing for the transfer of movement processes to the laboratory,” explained Andrzej Kochan, PhD Eng., the Director of the Transport Certification Centre at the Faculty of Transport of the Warsaw University of Technology.

He adds, “Cooperation with the Alstom laboratory in Katowice, which serves as the ESC testing centre, provides the opportunity to exchange knowledge and experience in the field of digital mapping of real systems. This work is part of our team’s research on the ETCS digital twin and, more broadly, on the railway digitalisation process. The last year’s experience has shown that simulation research, including ESC tests, is a technique that significantly increases the cognitive capabilities of complex systems, which undoubtedly include ETCS.”

Alstom’s experience in the Polish market includes, among others, the first implementation of the ERTMS level 2 system, construction of the ERTMS L2 system on 10 PKP PLK railway lines, construction of a control centre for the Warsaw Metro, construction of 30 centralised railway traffic control systems (CTC), equipping over 200 stations with computer dependency systems, and modernisation of over 1,700 crossing signalling systems.

Alstom™, Traxx™ and Onvia™ are trademarks of the Alstom Group.

The Transport Certification Center (OCT) is a certification body with competences to assess the control subsystem both in the field of on-board and trackside devices. Its competences include the certification of the type and compliance for all control subsystem devices. PKP Polskie Linie Kolejowe, Poland’s railway infrastructure manager, has also recognized OCT’s competences by an agreement to coordinate ESC/RSC tests for its network.

**About
Alstom**

Alstom commits to contribute to a low carbon future by developing and promoting innovative and sustainable transportation solutions that people enjoy riding. From high-speed trains, metros, monorails, trams, to turnkey systems, services, infrastructure, signalling and digital mobility, Alstom offers its diverse customers the broadest portfolio in the industry. With its presence in 63 countries and a talent base of over 80,000 people from 175 nationalities, the company focuses its design, innovation, and project management skills to where mobility solutions are needed most. Listed in France, Alstom generated revenues of €16.5 billion for the fiscal year ending on 31 March 2023.

For more information, please visit www.alstom.com

Contacts

Press:

Anna ZAŁUSKA (CEE) – Tel.: +48 601 145 935

anna.zaluska@alstomgroup.com

Patrycja NOJSZEWSKA (POLAND) – Tel.: +48 609 424 535

patrycja.nojszewska@fleishmaneuropa.com