

Cagliari, February 24th 2017

## **ANSALDO STS Presented ERSAT and ERSAT EAV projects: the satellite technology applied to the railway traffic management for the first time in Europe**

### ***The first European test-journey today from Cagliari to Decimomannu***

ERSAT is the latest generation signalling project that interfaces and integrates – for the first time in Europe – the European Rail Traffic Management System (ERTMS) with the navigation and satellite positioning technology Galileo.

ERSAT EAV project, which is presented together with Rete Ferroviaria Italiana and Trenitalia in Sardinia today to show how this technology works, is part of the European research plan Horizon 2020 within ERSAT project contest.

The project, coordinated by Ansaldo STS, has the final aim of defining and testing the evolution of ERTMS signalling system through train localization based on satellite technology.

Satellite technology is designed for a controlled and safe management of rail traffic of secondary conventional lines, local and regional lines.

**Andy Barr, CEO of Ansaldo STS**, declared: *“The railway signalling market, which represents a core business for Ansaldo STS, requires more and more innovative, reliable and competitive solutions in terms of costs, timing and energy saving, as well as in terms of safety and environmental impacts. We are glad to test this innovative technology today, for which there have already been several signs of interest coming from infrastructure managers and train operators in Italy and in Europe, thanks to the numerous vantages this system provides.”*

This technology uses the results of the previous 3InSat Project, funded by the European Space Agency (ESA) with the Italian Space Agency (ASI) support.

ERSAT EAV localizes trains via satellite and interfaces with the system that supervise the railway traffic (ERTMS). This data and information exchange is possible thanks to the devices installed on the train and the radio positioned on the railway line. The information-points of the existing signalling systems – balyse along the line – are planned to be replaced by virtual balyse managed by the satellite receiver and integrated in the ERTMS signalling system.

Vantages of ERSAT EAV are:

- To increase the traffic capacity available to railway undertakings, favouring those who travel and helping to reduce CO<sub>2</sub> emissions;
- To guarantee high railway safety standards and punctuality;
- To reduce operating costs, as the new technological equipment will require less investments for installation and maintenance.

Ansaldo STS has contributed to define the requirements aimed at supporting the integration between satellites and the public radio communication networks.

Moreover, it developed the test-site in Sardinia, where it verified the complete functioning of the new technology.

Ansaldo STS, listed on the Italian Stock Exchange, is an international technology company specializing in the design, implementation and management of transport systems and signaling equipment for railways and underground railways, both for freight and passengers. The Group acts as a Main Contractor and supplier of “turnkey” systems worldwide. Ansaldo STS is headquartered in Genoa and employs about 3,800 people in more than 30 countries. In 2015, it reported revenues of EUR 1,383.8 million with an operating income (EBIT) of EUR 135.8 million and a consolidated net profit of EUR 93.0 million.

**The same solution of Ansaldo STS, based on GPS constellation, is in operation in Australia already: first solution in the world**

What is tested in Sardinia has already been used for the completion of the Roy Hill Iron Ore project in Australia, first railway signalling system of this kind globally (in this case it consists of goods-transport).

Roy Hill has in fact recently developed its own iron-mining project and transportation of 55 million tons per year from mine to port for 350 railway kilometres in total.

The turnkey heavy haul railway signalling and communications solution for good-transport developed by Ansaldo STS for Roy Hill includes high technology Integrated Signalling and Communications solutions providing – among other benefits – the automatic train protection with satellite positioning, which allows to increase the density of the number of trains running through the Moving Block function.

The Ansaldo STS solution optimizes operational efficiencies and enables automated route setting and train control to be managed from the mine's Perth-based Remote Operations Centre (ROC), more than 1,300 kilometres away. It also delivers significant safety improvements for all track-related activities.

Ansaldo STS delivered Phase 1 of the project – the Integrated Electronic Train Order (IETO) system – into revenue service in September 2016. The Communications Based Signalling (CBS) system was completed in January 2017, and the final element of the project – Moving Block functionality – is under delivery.

**Notes**

**GNSS** refers to global navigation satellite system, with referral to geo-radio localization and earth navigation.

**ERTMS**, or more precisely ERTMS/ETCS (European Rail Traffic Management System/European Train Control System), is a management, control and protection system of railway traffic and respective on-board signalling. It is designed to replace the several and incompatible circulation and safety systems of the European Railways, with the final aim of guaranteeing the interoperability of trains, in particular on the new high speed European railway lines.

**ERSAT** is a latest satellite generation that interfaces and integrates the railway technology ERTMS (European Rail Traffic Management System) with the navigation and satellite positioning technology Galileo. The acronym comes from ER, for ERMST, and SAT, indicating the satellite technology.

**ERSAT AEV** is the project, funded with the contribution of GSA, where new localization algorithms were tested together with the ability to integrate EGNOS and Galileo in the Ansaldo STS's ERTMS solution, integrated with satellite technology and scheduled for ERSAT solution.

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