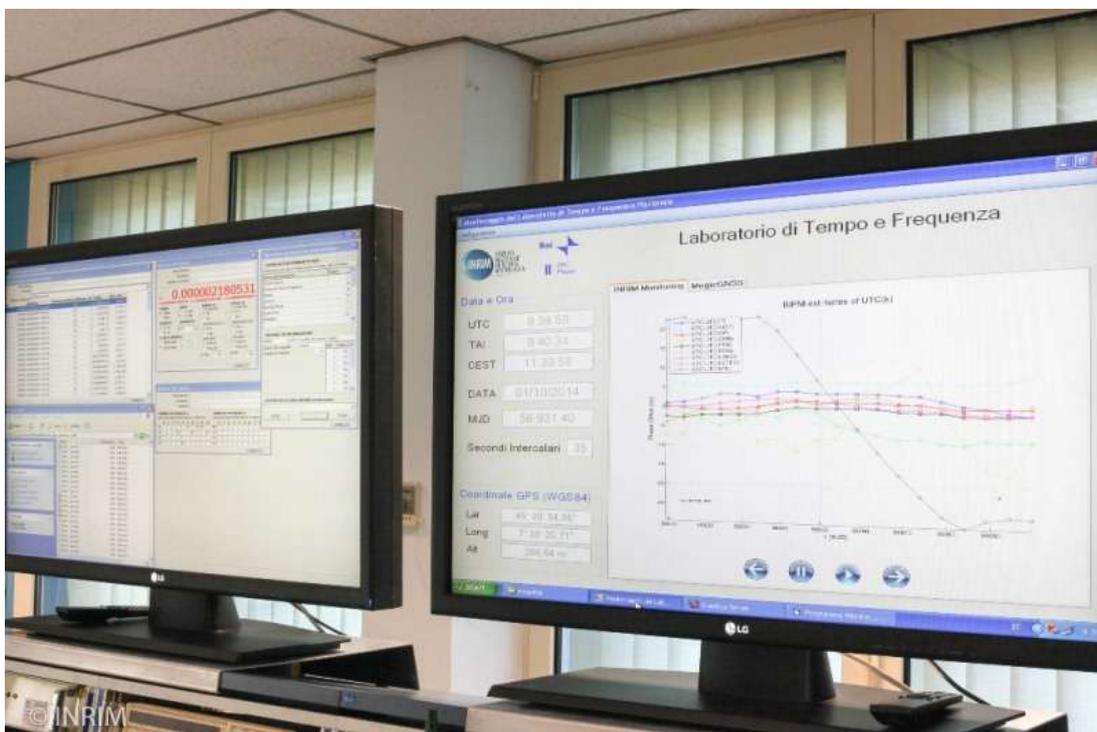


Italy keeps on playing a major role in the development of the European satellite navigation system
INRiM in charge to mark time for Galileo's satellites

On Thursday, April 27, the Galileo Time Service Provider contract will be signed in Turin by INRiM, the Italian Metrology Institute, the company Thales Alenia Space France and Spaceopal, who was selected in 2016 by the European GNSS Agency (GSA) to provide service operations for the European Galileo system, including the provision of a very accurate time service

It is now confirmed that the **Istituto Nazionale di Ricerca Metrologica (INRiM)** and **Thales Alenia Space France (TASF)** are providing support to Spaceopal, who is responsible for the management of the Galileo programme for the next decade. **Spaceopal** is a joint venture between the **DLR GfR mbH**, a daughter company of the **German Space Agency (DLR)** and **Telespazio SpA**, a Leonardo and Thales company.

Through the **Galileo Time Service Provider (TSP)** project, the Italian Metrology Institute will take care of the continuous comparison and the synchronization between Galileo time and the international time scale, also known as Universal Time Coordinated (UTC), **supporting the Galileo's capability to disseminate time with nanosecond accuracy**. This service will satisfy the synchronization needs required by potential new markets such as telecommunication, finance, energy distribution, transport, security, and rescue.



Monitoring time scales in the INRiM Time Laboratory

In 2016, Spaceopal has been selected by the **European Global Navigation Satellite System Agency (GSA)** as the Galileo service operator. For the next ten years, the company will assume responsibility for all the activities required to provide Galileo Services to the users across the world. So the agreement signed in the Galileo Service Operations (GSOp) Contract on December 15, 2016 in Brussels by **Carlo des Dorides**, Executive Director of GSA, and **Giuseppe Lenzo** and **Simon Plum**, CEO and COO of Spaceopal, respectively.

On **April 27, 2017** the contract between the German-Italian joint venture, Thales Alenia Space France (TASF) and INRIM will be finalized at the headquarters of the Italian Institute in Turin. CEO **Giuseppe Lenzo** and COO **Simon Plum** will sign the contract together with **Philippe Blatt**, TASF's Director, and **Diederik Wiersma**, INRIM's President.

"Spaceopal and his first class team is proud to have been selected by the European GNSS Agency to operate Galileo for the next ten years," says Spaceopal CEO Giuseppe Lenzo. "INRIM has provided us with a unique contribution to this success; we are honoured to have this worldwide recognised research centre taking care of Time Services and supporting us in bringing the Galileo signal in space to users and providing best-in-class satellite navigation services".

Other partners providing support to INRIM for the TSP project are the Italian company **Aizoon**, the Spanish **Indra**, and the French **SII**, as well as the **Politecnico di Torino** and the main European Metrology Institutes: the **Physikalisch-Technische Bundesanstalt** (PTB, Germany), l'**Observatoire de Paris** (OP, France), the **Royal Institute and Observatory of the Armada** (ROA, Spain), the **Royal Observatory of Belgium** (ORB), and the **Technical Research Institute (SP) of Sweden**.

"INRIM, which ensures Italy the reference for every measurement, can boast a great expertise as for time services: its laboratories contribute to realise the international time scale UTC and disseminate the time signal at national level. Furthermore, the Italian Metrology Institute is involved in the Galileo project since its beginnings", explains **Patrizia Tavella**, who leads the research team working at INRIM for the navigation system promoted by the European Union.



INRIM Time Laboratory generating the Italian Time Signal

The well-established partnership between INRIM and THALES ALENIA SPACE (TAS) dates back to **2001** when the Italian Institute had the task to set up an **Experimental Precise Timing Facility** to carry out trial tests. Since 2005, with the launch of Giove A, a first Galileo test satellite, INRIM works on the monitoring of the Galileo atomic clocks. In 2005, the Institute started operating in the **Consortium Torino Time**, the company selected by the European Space Agency (ESA) to realise a **Precise Time Facility**, which today is the laboratory measuring and realising Galileo time.

Still on behalf of ESA and again in cooperation with TAS, major European Metrology Institutes and the Politecnico di Torino, INRIM realised a **Time Validation Facility**, which from 2005 to 2014 has been providing time measurements for the Galileo validation tests in orbit.

With the 24-month **DEMETRA** project, started in January 2015, INRIM and TAS developed and tested a prototype of a European time service demonstrator capable of improving the time signal coming from the Galileo's satellites, monitoring and calibrating transmission and receipt devices, transmitting, supplementing and verifying data by means of different channels, such as radio, television, internet, optical links and geostationary satellites.

“Based on the DEMETRA experience, the TSP project aims to realise a flexible and robust infrastructure, which is able to evolve and adapt itself to future requirements. Our goal is the realisation of a facility that allows monitoring the state of the system by issuing warnings and suggesting recovery actions, operated by people not necessarily skilled in time metrology. High operability and a service oriented perspective have always been the fundamental requirements to be met”, says the Italian researcher.



Time Measurements in the INRIM DEMETRA Laboratory

The Time Service Provider will be hosted by the Galileo Control Centres, one located in **Fucino**, Italy, at the Telespazio Space Centre “Pietro Fanti”, the other in **Oberpfaffenhofen**, Germany, at the DLR site near Munich.

Thus, for the next years, thanks to the Time Service Provider and to the European Metrology Institutes, Galileo will be capable to deliver additional services related to time and will always be right on time!

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