**Galileo Validated In Orbit**

|  |  |
| --- | --- |
| 10:00:00 | ESA titles. |
| 10:00:00 | Title: **Galileo Validated in- orbit**  |
| 10:00:10* outside Galileo building, Fucino, Italy – unknown date – Telespazio
* Inside Galileo building: Atrium Galileo mock-up, Oberpfaffenhofen, Germany – 18/12/13 – ESA
* Galileo Animations – Unknown date –ESA
* Inside Galileo building: Main control Room, Oberpfaffenhofen, Germany – 18/12/13 – ESA
* Galileo IOV-2 launch, Ariane spaceport, Kourou, French-Guyana – 12/10/12 - ESA
 | V/O: The European space agency’s Galileo mission has now entered a new phase. With Galileo, ESA and the European Union are building and deploying the world’s first civilian owned and operated satellite navigation system. It will make Europe completely independent in this key domain. In 2011 and 2012, the first four satellites of the constellation were launched into orbit allowing the project to go through one of its most crucial phases, the so-called In-Orbit Validation or IOV. |
| 10:00:43* ESTEC, Noordwijk, The Netherlands – 16/01/13 – ESA
 | **ITW Sylvain Loddo – ESA - Galileo Ground segment procurement manager:** The IOV phase in the Galileo program was required to demonstrate that the future performance that we want to meet when system is deployed are effectively reachable. It was an intermediate step with a reduced part of the system to effectively give the evidence that we are on track with your expectations |
| 10:01:04* Galileo Animations – Unknown date –ESA
* Outside Galileo building: Oberpfaffenhofen, Germany – 18/12/13 – ESA
* Inside Galileo building: Main control Room, Oberpfaffenhofen, Germany – 18/12/13 – ESA
* Outside Telespazio ground, Fucino, Italy – 13/12/13 – ESA
 | V/O: With the four satellites in orbit ESA has created a mini constellation. Galileo is not only based in space but it includes several elements on earth like a number of ground stations. These are required to receive the satellites signals and send timing messages to the satellites. The satellites and stations are managed by two different control centers, one is located at Oberpfaffenhofen in Germany. It is in charge of the control segment meaning it is primarily responsible for flying the satellites The other is located at Fucino, Italy.  |
| 10:01:38* Outside Galileo building, Fucino, Italy – 13/12/13 – ESA
 | **ITW Fulvia Ferloni - Telespazio - Head of satellite navigation operation programmes:** The ground control centre in Fucino is responsible for operating the ground mission segment of Galileo. In this phase therefore we generate the navigation message and it is distributed to the ground network stations and uplinked to the satellites. from the satellite then again downlinked both to user terminals and to the network of groundstations which are receiving the signal and feeding it back to the centre. |
| 10:02:06* Images of first position fix, Navigation lab, ESTEC, Noordwijk, The Netherlands – 12/03/13 - ESA
* Images of the Navigation van, outskirts of Leliestad, The Netherlands – 06/11/13 – ESA
 | V/O: The in-orbit validation was started with the first Galileo-only position fix. This happened on the 12th of March 2013 in the navigation lab in Noordwijk, Netherlands - an historic day for Europe.But in order to ensure the system’s capability; it was also mandatory to check these signals outside a laboratory environment and so ESA went on to test the system in the field. Receiver equipment was embarked on a Laboratory van which drove thousands of kilometres to get position fixes all across Europe. Several other means of transport have also been tested in recent months. |
| 10:02:44* Images of the Navigation van, outskirts of Leliestad, The Netherlands – 06/11/13 – ESA
* Navigation lab, ESTEC, Noordwijk, The Netherlands – 16/01/13 - ESA
 | **ITW Marco Falcone - ESA Galileo System Manager:** We have also been performing flight trials in corporation which EUROCONTROL. We have been flying aeroplanes over the Netherlands, embarking on this aeroplane the test receivers that have shown good results and of last year we have also started to perform the first Maritime test with receivers embarked on a boat in the North Sea. |
| 10:03:09* Galileo Animations – Unknown date –ESA
* Inside Galileo building: Main control Room, Oberpfaffenhofen, Germany – 18/12/13 – ESA
 | V/O: Galileo has clearly demonstrated it is on the cutting edge of technology: flying the most advanced timing equipment - Hydrogen Maser clocks - and giving accurate timing performances up to a few nanoseconds with positioning on the ground down to a few metres..  |
| 10:03:25* ESTEC, Noordwijk, The Netherlands – 16/01/13 – ESA
 | **Didier Faivre - Director of Galileo and Navigation-related Activities:** Europe has proven with the IOV that in terms of performance we are at par with the best international systems of navigation in the world, the US GPS and the Russian Glonass. In terms of performances we are really extremely good and fully comparable with those systems. So we demonstrate to Europe what we can do what Europe has done in all space fields until now. And we demonstrate to the world that we are now a partner and a credible partner. |
| 10:03:56* Outside Galileo building: Oberpfaffenhofen, Germany – 18/12/13 – ESA
* Inside Galileo building: Main control Room, Fucino, Italy – 18/12/13 – ESA
* Images of boat and airplane, outskirts of Leliestad, The Netherlands – 06/11/13 – ESA
* Images of traffic and sat nav, Italy – unknown date – Telespazio
 | V/O: Now that Galileo has successfully completed its In-Orbit Validation phase, a huge step has been taken by the European Space Agency towards the full deployment of the Galileo system - soon ready to provide its first real services. |
| 10:04:12 | **B-ROLL** |
| 10:04:12 | **ITW Sylvain Loddo – ESA - Galileo Ground segment procurement manager (english) – Results of the IOV phase (2 shots):** The main results of the IOV phase are related to the ranging accuracy of the signals we are broadcasting and also to the accuracy of the on-board clock and those results have proven to be extremely good but even then what we were expecting// ESTEC Noordwijk The Netherlands: How did the IOV phase performed beyond expectations? (english +french) The results we have measured with the IOV phase were better than we expected between the arrange off between 20 or 30%. What we weren't expecting with such a limited number of satellites in orbit at this stage. |
| 10:04:59 | **ITW Sylvain Loddo – ESA - Galileo Ground segment procurement manager (French) – purpose of the IOV phase** |
| 10:05:26 | **ITW Sylvain Loddo – ESA - Galileo Ground segment procurement manager (French) – Results of the IOV phase (2 shots)** |
| 10:06:19 | **ITW Fulvia Ferloni - Telespazio - Head of satellite navigation operation programmes (Italian) – The objective of the mission control segment in Fuciono, Italy** |
| 10:07:04  | **ITW Marco Falcone - ESA Galileo System Manager- (English) – How the IOV phase was executed (2 shots):** The in orbit validation campaign has been articulated in a period of around six months and we had a very large team deployed on very on many different sites in Europe. Being in global navigation system, we had to deploy resources and different locations. Basically we have done tests in fixed conditions in our Laboratories here at European space agency in noorwijk in the Netherlands. We have been doing testing in our industrial premises in Germany and in Italy with our industrial contractors, you're talking in an order of magnitude of several thens of people deployed in different locations to give an idea. Also because for positioning and timing you need to do tests in the field. We have been driving several thousands of kilometres in order to check the quality of the positioning performance vehicles could reach on the road. In addition we have also been performing flight trials in corporation which EUROCONTROL. We have been flying aeroplanes over the Netherlands, embarking on this aeroplane the test receivers that have shown good results and of last year we have also started to perform the first Maritime test with receivers embarked on a boat in the North Sea. All these results are very good and make us very, very good expectations for the future.// The test has been performed in a reduced consolation with only four satellites but of course the concept of the in orbit validation is to get the results that we can use to extrapolate to the full consolation once deployed and I have to say the results we reach today are confirming fully the performance that the final system will achieve |
| 10:08:54 | **ITW Marco Falcone - ESA Galileo System Manager- (Italian) – How the IOV phase was executed:** |
| 10:10:47 | **Didier Faivre - Director of Galileo and Navigation-related Activities (French) what Europe has shown with Galileo** |
| 10:11:20 | **Images of the Navigation Van, Outskirts of Leliestad, the Netherlands – 06/11/2013 – 7 shots** |
| 10:12:21 | **Images of Ground Control center, Oberpfaffenhofen, Germany – 18/12/13 – 25 shots****- Main control room, Maser clock, Serverroom, second control room, Outside, atrium,**  |
| 10:15:24 | **Images of Ground mission center, Fucino, Italy – 13/12/13 – 11 Shots****- Fucino Grounds, galileo building, Main control room, Serverroom** |
| 10:16:49 | **END** |