**A German/UK consortium has been asked to supply the first operational spacecraft for Europe's Galileo satellite-navigation system.**

OHB System and Surrey Satellite Technology Limited (SSTL) will build 14 satellites in a contract valued at 566m euros ($811m; £510m).The contract was announced by the European Commission in Brussels. Galileo is intended as an EU version of the US Global Positioning System (GPS), but with significant improvements. Its more advanced technology should give users quicker, more reliable *fixes*, and enable them to locate their positions with an error of one metre compared with the current GPS error of several metres. European Commission vice-president with responsibility for transport, Antonio Tajani, also announced contracts to purchase the rockets on which to launch the satellites, and system management to *oversee* the Galileo project implementation. "With this and the upcoming awards for the remaining procurement packages, we are concluding a critical phase of the Galileo programme," he said. "We can now focus on the actual *roll-out* and demonstrate to European citizens that Europe's own satellite-navigation system is firmly underway."

**Flight pairs**

The total value of the contracts announced on Thursday is just over one billion euros. The contracts mean Galileo, which has been much delayed, should finally become operational in early 2014.

GALILEO UNDER CONSTRUCTION

 A European Commission and European Space Agency project

 At least 22 satellites to launch in *batches* in coming years

 Will work alongside US GPS and Russian Glonass systems

 Promises real-time positioning down to less than a metre

 Guaranteed under all but most extreme circumstances

 Suitable for safety-critical roles where lives depend on service

"Our schedule has the satellites *rolling off* the end of the production line in the second half of 2012," said Phil Davies from SSTL. "We then fall into a *steady* state where we produce a satellite every six weeks or so. The first two will be ready for launch in October 2012," he told BBC News. Arianespace of France will launch the spacecraft. The value of its contract amounts to 397m euros ($569m; £358m). Arianespace will use Russian-built Soyuz rockets initially to send up the spacecraft in batches of two. By early 2014, it is thought there could be up to 16 spacecraft in the Galileo network, enough to make a significant difference to sat-nav users with Galileo and GPS-enabled receivers. Thales Alenia Space of Italy has been asked to provide the system support to *pull* the whole project *together*. Its contract is valued at 85m euros ($122m; £77m).

**Long road**

Galileo should have been operational by now but the project has run into myriad technical, commercial and political obstacles, including early objections from the Americans who thought a rival system to GPS might be used to attack its armed forces. The venture came very close to being abandoned in 2007 when the public-private development-and-business model set up to build and run the system collapsed. To keep Galileo alive, EU member-states had to agree to fund the entire project from the public purse. What should have cost European taxpayers no more than 1.8bn euros will now probably cost them in excess of 5bn euros. The EU's continued commitment to the project despite severe budgetary and management failings is based on the belief that huge returns to the European economy will accrue from the investment. Already, GPS is said to have spawned global markets that are worth several tens of billions of euros annually. The new European constellation is expected to deepen and extend those markets as sat-nav functionality becomes ubiquitous in consumer devices such as mobile phones. Thursday's contracts are just the start of operational roll-out of Galileo. More satellites and rockets will be needed.

There are also outstanding work packages that need to be awarded, for the ground control segments of Galileo. The three major contracts in this area should be awarded by mid-2010.

**THE GALILEO SYSTEM WILL HAVE FIVE SERVICES**

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| --- | --- |
| **OPEN ACCESS NAVIGATION** | This will be 'free to air' and for use by the mass market; Simple timing and positioning down to 1m |
| **COMMERCIAL NAVIGATION** | Encrypted; High accuracy at the cm scale; Guaranteed service for which service providers will charge fees |
| **SAFETY OF LIFE NAVIGATION** | Open service; For applications where guaranteed accuracy is essential; Integrity messages will warn of errors |
| **PUBLIC REGULATED NAVIGATION** | Encrypted; Continuous availability even in time of crisis; Government agencies will be main users |
| **SEARCH AND RESCUE** | System will *pick up* *distress beacon* locations; Feasible to send feedback, confirming help is on its way |

distress beacon trasmettitore di richieste di soccorso

1 Who is going to provide the firstEurope's Galileo satellite-navigation system?

2 How many satellites will be built?

3 What are the advantages of this new system?

4 Which contracts did the European Commision Vice President announce ?

5When do they hope to have the first satellites?

6 Who is going to launch it?

7 How many satellites will they orbit from then on?

8 When do they think it will be opererational?

9 What is Thales Alenia Space of Italy’s role in this

10 Why hasn’t Europe's Galileo satellite-navigation system been introduced up to now?

11 Why has the EU contiued to believe in Galileo?