



MICRO-SENSOR TAKES LARGE STEP FOR SATELLITE NAVIGATION - June 05

SEA has been awarded a major technology contract from the European Space Agency (ESA) to develop an innovative solid-state rate sensor for spacecraft.

The development, to be undertaken in collaboration with BAE SYSTEMS and SELEX Sensors and Airborne Systems, will aim to produce a higher performance sensor well adapted to the needs of space - high accuracy, low drift and tolerant of the radiation environment. The sensor is set to become a significant technological enhancement for all future space missions from communications satellites to advanced rovers for the exploration of planets.

The MEMS (Micro-Electro-Mechanical Systems) technology has many advantages for space missions requiring low mass or power and being inherently robust. With the cost of launching a single kilogramme into space being as much as \$50,000, a MEMS sensor pack weighing less than 0.5 kg has clear advantages compared with devices weighing ten times more.

The development is needed because existing MEMS rate sensing devices have relatively modest performance compared to alternative technologies; a key objective of the development will be to produce devices of sufficient performance to be used in most space applications.

In an innovative industrial teaming, space experts SEA will lead the development of the inertial measurement unit, as well as performing the design and development of the radiation hardened electronics to drive the BAE SYSTEMS MEMS sensor.

BAE SYSTEMS in Plymouth will design, develop and test the improvements to the MEMS sensor; SELEX Sensors and Airborne Systems in Edinburgh will undertake the mechanical and thermal design and packaging and develop the production approach.

A flight demonstration in space is planned for the new MEMS rate sensor within the next 2 years and the programme has already excited considerable interest from Europe and the USA. A qualified flight product will be available for spacecraft developments within the next 2-3 years.