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## RF Engines Ltd (RFEL) smart Time of Arrival design *“Demand for exclusive designs growing”*

**Newport, Isle of Wight, UK – 20 May 2009** – RF Engines Limited (RFEL), the specialists in high performance signal processing design work, have been contracted by SELEX Galileo to develop a new algorithm and the optimum architecture for determining the fine time of arrival of certain classified signals. The design will also be implemented on FPGA (Field Programmable Gate Array) by RFEL.

Details of the application are restricted, however it is stated that the airborne design will provide a significant improvement in the localisation (i.e. the position of the source) of the target signals. In basic terms, the techniques employed use the difference in the time of arrival of an electronic signal, at two or more detectors to provide data that enables the direction or angle of the signal from the receiver to be calculated very accurately. The difference in the distance travelled by the relevant signals may be miniscule, but, with sufficient processing power, the data can be used to rapidly derive the required information.

The contract has required RFEL to initially study a number of options, including various thresholds for initiating action, to add to the sum of knowledge being accumulated by the overall SELEX Galileo system; for example, looking at either the waveform envelope or the fine structure of the waveform. Other highly critical features of the design include the probabilities of detection and of false alarms for various signal-to-noise ratios and pulse rise-times. The design is also future-proofed to allow for planned feature enhancements to the overall system.

The RFEL design has been comprehensively modelled in line with standard RFEL practice, and shown to integrate with SELEX Galileo's system model.

Commenting on the work, John Summers, RFEL's CEO, said: "This is an example of the growing demand from customers for exclusive design work that provides a unique solution and an edge, so we're very pleased to be working so closely with SELEX in this very important and technically demanding area. It draws not only on our ability to create high performance designs that identify and process RF signals in real time but also to deliver solutions in a compact, power saving way which is vital for airborne applications."

Commenting from SELEX Galileo, Programme Manager Nigel Watson said: "This particular programme has an extremely demanding timescale, and so we've been very pleased with the close working relationship with RFEL and the consequent ease of integration of their designs into the SELEX system."

**SELEX Galileo**

Across air, land, sea and space SELEX Galileo offers both integrated sensor solutions and through-life capability management for defence systems and homeland security applications. SELEX Galileo is part of the Finmeccanica defence electronics sector and employs over 7000 people in the UK, Italy and the United States. SELEX Galileo leverages on its international strengths to deliver powerful, innovative solutions and by forging and sustaining leading partnerships, provides proven capabilities to its customers. SELEX Galileo is a leader in surveillance, protection, tracking, targeting, navigation & control and imaging systems.

### **RF Engines Ltd**

RF Engines Limited (RFEL) is a UK-based electronic systems designer, providing high specification signal processing solutions for FPGAs, as well as receiver and complete product solutions for the homeland security, defence, communications and instrumentation markets. Applications include communications base stations, satellite communications systems, test and measurement instrumentation, and bespoke wideband receivers/transceivers.

#### **Further Information**

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