



## Press release

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# Bittium, Leonardo, Thales and the Finnish Defence Forces demonstrate ESSOR High Data Rate Waveform for joint operations in battlefield conditions

**Oulu, Finland, December 22, 2016** – Bittium, Leonardo and Thales along with the Finnish Defence Forces have demonstrated the capabilities and functionalities of the High Data Rate Waveform (HDRWF) developed in the European ESSOR programme (European Secure Software defined Radio) in battlefield conditions and with a 15 radio node configuration. The activity was carried out using three different radio platforms from the three participating ESSOR Companies to demonstrate how the land forces of different European countries can communicate seamlessly with each other in joint operations, linking up via a common waveform regardless of the radio platforms they use.

The capabilities of the waveform were showcased by operating different applications, such as Command and Control (C2), Situational Awareness, Video streaming and VoIP (Voice over IP), in mobility, demonstrating the ad-hoc capability of the ESSOR HDRWF, with fast and robust network building and reforming. The radio platforms used for the demonstration were the Bittium Tactical Wireless IP Network™ (TAC WIN) system, the Leonardo SWave vehicular 4-channels SDR, and the Thales SDR vehicular platform. Thanks to this event, the maturity and stability of the ESSOR HDRWF for battlefield use was proven; this was the first time the ESSOR HDRWF was demonstrated with such an extensive radio configuration in battlefield conditions and operated by the Finnish Defence Forces, confirming its ability to provide interoperability communications and services among diverse coalition armed forces on the field.

“The successful demonstration indicated that the ESSOR HDR Waveform on its significant part redeems the expectations set for software defined radios. Now for the first time it was possible to validate with field demonstrations that radios from different manufacturers and countries can efficiently form a data communications network and offer the needed interoperability also for the needs of the land forces. Additionally, the waveform was proven to be just as capable as its specification has required it to be”, states Colonel Eero Valkola, Assistant Chief of Staff G6, Finnish Army.

The demonstration was part of the Finnish Defence Forces’ program for testing the national waveform implementation; the Nations of Italy and France were invited to participate in order to further prove the interoperability results.

Bittium, Leonardo and Thales had previously demonstrated part of the interoperability capabilities and the functionalities of the waveform at the Eurosatory defense exhibition in June 2016.

## About ESSOR

The aim of the ESSOR program is to develop the European Software Defined Radio technology in order to improve the capabilities for cooperation in coalition operations. The program was established under the umbrella of the European Defense Agency (EDA)**Error! Reference source not found.**, sponsored by the governments of Finland, France, Italy, Poland, Spain and Sweden, and it was awarded by the Organisation Conjointe de Coopération en matière d’Armement (OCCAR) to the dedicated joint venture Alliance for ESSOR (a4ESSOR S.A.S.) to be in charge of managing the industrial consortium. Besides Bittium, the other companies involved in the first phase of the ESSOR - which was successfully completed in 2015 - were Indra from Spain, Leonardo from Italy, Radmor from Poland, Saab from Sweden, and Thales from France. In addition to the European High Data Rate Waveform, the first phase of the program produced and validated the definition for the European Software Defined Radio Architecture which was ported and qualified on six different European platforms. The parties are currently negotiating the second phase of the program, which will add even more operational capabilities to the ESSOR system.



#### About Bittium Tactical Wireless IP Network™

Bittium Tactical Wireless IP Network (TAC WIN) is a Software Defined Radio based wireless broadband network system intended for military and public safety use. With the system MANET (Mobile Ad Hoc Network), link, and connection networks can be formed into one logical IP network quickly, no matter what the location is. Bittium TAC WIN is compatible with existing fixed and wireless network infrastructures. The core of the system is a tactical router that enables users to freely form both wired and wireless broadband data transfer IP connections. Tactical router enables also connections to different types of terminals and other communication systems connecting them into a one communication network. In addition to the router the system comprises three types of radio heads, and each radio head covers its own frequency band area and can be used for flexible formation of optimized network topologies for different communication needs. All the products of the system are designed for harsh conditions, and thanks to the system's automated functions the implementation of the system can be done quickly. Due to the software-based functionality of the Bittium TAC WIN system, it can be easily updated with additional performance cost-efficiently during the whole lifespan of the system. More information about Bittium TAC WIN system and the related products: [http://www.bittium.com/products\\_services/defense/bittium\\_tactical\\_wireless\\_ip\\_network](http://www.bittium.com/products_services/defense/bittium_tactical_wireless_ip_network).

#### About Leonardo SWAve SDR

Leonardo was one of the first companies in the world to invest in Software Defined Radio (SDR) technology, having developed the systems since early 2000. The company has also benefitted from its experience in a major Italian SDR programme, largely funded by the Italian Defence Forces, through the Italian defence procurement organization (SEGREDIFESA/DNA - The Secretariat General of Defence / National Armaments Directorate and its technical directorates), which saw the technology as key to fulfilling a wide range of demanding requirements. A road-map was created for SDR technology covering deployed soldiers, vehicular use, naval use and infrastructure applications. This has led to a complete range of products under the Swave family name, which includes handheld, man pack and vehicular tactical radio systems. These products host a wide range of waveform applications, covering all of a potential customer's operational needs. Radio platforms used for the demonstration were the Leonardo Swave™ vehicular 4 channels, able to host 4 active communications at the same time in a frequency range spanning from 2 MHz to 2 GHz, with an embedded power of 50 Watts per channel. This has allowed a seamless installation on the hosting vehicles, without any additional device or ancillary.

#### About Thales SYNAPS SDR

Thales has launched SYNAPS, its new broadband tactical software-defined radio family for collaborative combat which will run the ESSOR HDRWF. The new radio communication systems are designed for international markets and all branches of the armed forces. SYNAPS radio communication systems provide commanders with information superiority, because of their unparalleled range performance, and offer the optimum combination of data rates, security and connectivity. SYNAPS is based on CONTACT, Europe's largest software radio programme, which is contracted by the French Defence Procurement and Technology Agency (DGA) and will equip the French armed forces from 2019. <http://www.thalesgroup.com/en/synaps-0>



#### Further information:

##### Bittium

Jari Sankala  
Senior Vice President, Defense & Security  
Tel. +358 40 344 3507

Email: [defense\(a\)bittium.com](mailto:defense(a)bittium.com)

##### Leonardo

Flavia Negretti  
Press Office  
Tel: +39 334 6378422  
Email: [flavia.negretti@leonardocompany.com](mailto:flavia.negretti@leonardocompany.com)

##### Thales

Justine Degez  
Media Relations for land Defence  
Tel. +33 6 89 34 53 09  
Email: [justine.degez@thalesgroup.com](mailto:justine.degez@thalesgroup.com)

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##### Bittium

Bittium specializes in the development of reliable, secure communications and connectivity solutions, leveraging its 30 year legacy of expertise in advanced radio communication technologies. Bittium provides innovative products and customized solutions based on its product platforms and R&D services. Complementing its communications and connectivity solutions, Bittium offers proven information security solutions for mobile devices and portable computers. Starting from November 10<sup>th</sup>, Bittium offers its customers also healthcare technology products and services in biosignal measuring in the areas of cardiology, neurology, rehabilitation, occupational health and sports medicine. Net sales of continuing operations in 2015 was EUR 56.8 million and operating profit was EUR 2.3 million. Bittium is listed on Nasdaq Helsinki Exchange. [www.bittium.com](http://www.bittium.com)

##### Leonardo

Leonardo-Finmeccanica is among the top ten global players in Aerospace, Defence and Security and Italy's main industrial company. As a single entity from January 2016, organized into business divisions (Helicopters; Aircraft; Aero-structures; Airborne & Space Systems; Land & Naval Defence Electronics; Defence Systems; Security & Information Systems), Leonardo operates in the most competitive international markets by leveraging its areas of technology and product leadership. Listed on the Milan Stock Exchange (LDO), at 31 December 2015 Finmeccanica recorded consolidated revenues of 13 billion Euros and has a significant industrial presence in Italy, the UK and the U.S. [www.leonardocompany.com](http://www.leonardocompany.com)



## Thales

Thales is a global technology leader for the Aerospace, Transport, Defence and Security markets. With 62,000 employees in 56 countries, Thales reported sales of €14 billion in 2015. With over 22,000 engineers and researchers, Thales has a unique capability to design and deploy equipment, systems and services to meet the most complex security requirements. Its unique international footprint allows it to work closely with its customers all over the world. [www.thalesgroup.com/en](http://www.thalesgroup.com/en)