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# **Resonant to Present New RF Filter Development Technology at IEEE Ultrasonics Symposium on September 18-21**

*Dr. Victor Plessky, Resonant's Director of Engineering & Founder of GVR Trade SA, to Present a New FEM Simulation Method that is believed to be Highly Accurate and Significantly Faster than Traditional Methods*

GOLETA, Calif.-- Resonant Inc. (NASDAQ:RESN), a designer of filters for radio frequency, or RF, front-ends that specializes in delivering designs for difficult bands and complex requirements, today announced that Dr. Victor Plessky, Resonant's Director of Engineering and Founder of Swiss-Based GVR Trade SA, a wholly owned subsidiary of Resonant, will present the Company's recent breakthroughs in the development of RF filters at the IEEE International Ultrasonics Symposium in Tours, France, on September 18-21.

At the symposium, Dr. Plessky will present a paper titled, "Hierarchical cascading in 2D FEM simulation of finite SAW devices with periodic block structure." Electroacoustic simulation using the finite element method (FEM) can be employed to develop surface acoustic wave (SAW) filters and has the key advantage of being highly-flexible; however, FEM simulations typically require significant time and computing power. Dr. Plessky will present a new FEM simulation method that the Company believes is highly-accurate and significantly faster than traditional methods. In the future, Resonant believes it will be possible to apply these same techniques to other acoustic resonator technologies, such as bulk acoustic wave (BAW) and Film Bulk Acoustic Resonator (FBAR).

The presentation is based on a paper written by key researchers at Resonant, including Dr. Panagiotis Maniadis, Dr. Balam Willemsen, Dr. Patrick Turner, Dr. Bob Hammond and Neal Fenzi, as well as Dr. Julius Koskela and Dr. Victor Plessky of GVR Trade SA.

A leading driver of today's RF filter market are smartphones that can contain in excess of 30 RF filters to support the increasing number of data bands used by carriers. This number of filters is expected to nearly double in the coming years, which will require more board space, increased product costs and higher battery draw in the absence of more complex filter designs and architectures.

"We expect Resonant's simulation breakthrough to provide SAW filter developers significant benefits by offering the ability to quickly develop and iterate new products, thereby driving down costs without sacrificing phone design flexibility," said Terry Lingren, CEO and Co-Founder of Resonant. "We're excited to have Victor introduce this key capability of our Infinite Synthesized Network (ISN) platform to an international audience of peers and showcase our ability to deliver some of the most sophisticated techniques in advanced filter

design available today.”

## **About Resonant® Inc.**

Resonant is creating innovative filter designs for the RF front-end, or RFFE, for the mobile device industry. The RFFE is the circuitry in a mobile device responsible for the radio frequency signal processing and is located between the device’s antenna and its digital baseband. Filters are a critical component of the RFFE that selects the desired radio frequency signals and rejects unwanted signals and noise.

## **About Resonant’s ISN® Technology**

Resonant can create designs for hard bands and complex requirements that we believe have the potential to be manufactured for half the cost and developed in half the time of traditional approaches. The Company’s large suite of proprietary mathematical methods, software design tools and network synthesis techniques enable it to explore a much bigger set of possible solutions and quickly derive the better ones. These improved filters still use existing manufacturing methods (e.g. SAW) and can perform as well as those using higher cost methods (e.g. BAW). While most of the industry designs surface acoustic wave filters using a coupling-of-modes model, Resonant uses circuit models and physical models. Circuit models are computationally much faster, and physical models are highly accurate models based entirely on fundamental material properties and dimensions. Resonant’s method delivers excellent predictability, enabling achievement of the desired product performance in roughly half as many turns through the fab. In addition, because Resonant’s models are fundamental, integration with its foundry and fab customers is eased because its models speak the “fab language” of basic material properties and dimensions.

## **Safe Harbor/Forward-Looking Statements**

This press release contains forward-looking statements about the capabilities and uses of our simulation methods and technologies. Forward-looking statements are made as of the date of this document and are inherently subject to risks and uncertainties which could cause actual results to differ materially from those in the forward-looking statements, including, without limitation, the following: our ability to continue development of our methods and technologies; the ability of our customers (or their manufacturers) to fabricate filter designs created using our methods and technologies in commercial quantities; the ability of our designs to significantly lower costs compared to other designs and solutions; the risk that the intense competition and rapid technological change in our industry renders our methods, technologies and filter designs less useful or obsolete; and our ability to find, recruit and retain the highly skilled personnel required for our design process in sufficient numbers to support our growth. Additional factors that could cause actual results to differ materially from those anticipated by our forward-looking statements are under the captions “*Risk Factors*” and “*Management’s Discussion and Analysis of Financial Condition and Results of Operations*” in our most recent Annual Report (Form 10-K) or Quarterly Report (Form 10-Q) filed with the Securities and Exchange Commission. Forward-looking statements are made as of the date of this release, and we expressly disclaim any obligation or undertaking to update forward-looking statements.

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