

Resonant Announces Availability of Full-Band, Band 41 TDD Filter Available as an ISN(R) Design In SAW

GOLETA, CA -- (Marketwired) -- 10/31/17 -- 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 a licensee has produced a state-of-the-art Full-Band, Band 41 Time Division Duplex (TDD) filter that is required for all handset vendors addressing the China market, using a Resonant Surface Acoustic Wave (SAW) design. Resonant's licensee has also made this Band 41 filter available for sale and is currently sampling to OEMs.

The Band 41 TDD filter is a highly technical and complex design, widely regarded as one of the most difficult filters to design. Typically, in high frequency operation (the maximum passband frequency is 2.69GHz), these designs are restricted to small feature sizes, while the filter must handle high LTE powers because of TDD operation. In addition, this specialized design requires extremely large bandwidth at 194MHz, as well as the rejection of neighboring WiFi bands to prevent interference.

"Not only were we able to create this very complex Band 41 filter design in less than our stated time frame of 12-18 months for an ISN Pilot design, but we did it on a SAW platform, which we believe is the first of its kind in the market," said George Holmes, CEO of Resonant Inc. "We expect this to be a high-volume filter, with the potential for rapid growth due to its use in Asia for LTE. Our customers require increasing complexity and rapidly evolving technology, which Resonant has delivered in the Band 41 filter design using our innovative software, intellectual property, and the capabilities of our experienced team."

"This design is yet another example of how we are focusing on our core business and reducing execution risk as we drive towards royalty revenues," Holmes added. "We continue to collaborate with our customers to reduce the time it takes to bring our designs to market, in an effort to accelerate our receipt of royalty revenues."

The Company believes that the superior performance of Resonant's Band 41 filter design offers several key advantages over competitive filters:

- **Full band operation (194MHz)** - One part can accommodate all of the Band 41 carriers globally. This is a significant improvement, given that most of the commercially available filters are sub-band, while full band parts are traditionally processed in BAW and FBAR, which is much more expensive.
- **WiFi co-existence filter** - This filter design results in high rejection to WiFi (> 35dB). In addition, it allows for operation of TDD cellular and WiFi simultaneously, while also reducing interference.
- **Small footprint** - With measurements of only 1.3 mm x 1.1 mm, the size of this design

translates to less material and lower production costs, which can be passed on to customers.

- **HPUE capable** - High Performance User Equipment (HPUE) is designed to improve the performance of TDD-LTE Band 41 networks around the world, by allowing higher power operation and therefore improved coverage. This is a current requirement of China Mobile.

Figure 1 compares the measured passband performance of Resonant's Band 41 filter design as compared to the best publicly available Band 41 filter. Lower insertion loss (IL) represents higher performance.

The improved performance over BAW is validation of the capabilities of Resonant's ISN platform. In particular, the accuracy with which the measured performance matches the simulation prior to fabrication (see Figure 2), allows optimization of performance without the need for multiple fabrication iterations.

About Resonant Inc.

Resonant is creating software tools and IP & licensable blocks that enable the development of 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. For more information, please visit www.resonant.com.

About Resonant's ISN® Technology

Resonant can create designs for difficult 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 (i.e. SAW) and can perform as well as those using higher cost methods (i.e. 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, which include the following subjects, among others: the capabilities and expected sales volumes of Resonant's Band 41 filter design. 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 limited operating history; our ability to complete designs that meet customer specifications; market demand for filters utilizing our designs; the ability of our customers (or their manufacturers) to fabricate our designs 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 designs less useful or obsolete; our ability to find, recruit and retain the highly skilled personnel required for our design process in sufficient numbers to support our growth; our ability to manage growth; and general market, economic and business conditions. 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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http://www.marketwire.com/library/MwGo/2017/10/31/11G147190/Images/Figure_1-174b82d8a8deb2c2b66d1a59f71a25bf.jpg

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Investor Relations Contact:

Greg Falesnik

MZ North America

1-949-385-6449

Greg.Falesnik@mzgroup.us

Source: Resonant Inc.