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Akoustis™ Reports Unprecedented High Band Resonator Bandwidth Performance

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San Francisco, CA., May 23, 2016 (GLOBE NEWSWIRE) -- Akoustis™ Reports Unprecedented High Band Resonator Bandwidth Performance

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San Francisco, CA., May 23, 2016 –Akoustis Technologies, Inc. (OTCQB: [AKTS](#)) (“Akoustis” or the “Company”), a manufacturer of innovative BulkONE™ single crystal piezoelectric bulk acoustic wave (BAW) RF filters for mobile wireless, will announce an update on technical progress of their BAW resonator technology today at the [2016 IEEE RFIC Symposium](#).

Technical Results

The results reported today at the IEEE RFIC Symposium showcase a range of single crystal group III-nitride piezoelectric materials that were fabricated into BAW resonators and characterized at cellular communication frequencies to determine their bandwidth. K-squared is an important parameter and determines the bandwidth of high band BAW RF filters used in mobile smartphones. The company presented today record high K-squared of 12.5% on 3.4GHz BAW resonators constructed from single crystal undoped aluminum nitride (AlN) piezoelectric material. These resonators, which are the core building blocks enabling BAW RF filters, were fabricated using the Company’s patented BulkONE™ process.

In comparison, incumbent K-squared performance from undoped polycrystalline AlN resonators is limited to approximately 6-7%. In order to increase K-squared for polycrystalline AlN, the material must be “[doped](#)” with one or more impurities (such as Sc, Mg, Hf, Zr), resulting in energy losses and performance trade-offs. Akoustis’ patented undoped single crystal AlN offers significantly higher resonator bandwidth without performance penalties associated with doping.

Significance of Results

According to a 2015 report from Mobile Experts, approximately 25% of all 4G/LTE RF filter-band shipments in 2016 will require high frequency and/or high K-squared resonator building blocks. Drawbacks in constructing high bandwidth RF filters using incumbent low K-squared resonators include larger size, higher cost and greater energy loss associated with inefficient compensation circuitry. Using resonators with inherently higher K-squared, Akoustis expects to offer high bandwidth BAW RF filters that will improve the battery life and reduce dropped calls for 4G/LTE smartphones.

The Company previously published a paper discussing analytical simulations that predicted higher K-squared performance in undoped single crystal AlN. The technical results presented today validate the prediction of significantly higher K-squared resonators using the Company's patented, single crystal materials technology. The Company will complete process optimization (maximizing the Quality Factor) before completing first generation BAW RF filter product qualification and production ramp. The Company is in the process of defining its outsourced supply chain for high-volume manufacturing of RF filter wafers.

Commenting on the announcement, Jeff Shealy, CEO of Akoustis, stated, "The technical results presented today represent a transformational improvement in piezoelectric materials for high band RF BAW resonators for two reasons. First, our single crystal AlN resonators offer nearly twice the available bandwidth of incumbent undoped polycrystalline-based AlN resonators. Second, our undoped resonator technology delivers wide bandwidth while avoiding the significant disadvantages associated with doping the piezoelectric material." Mr. Shealy added, "In addition to competing in the high band RF filter market for 4G/LTE mobile, our wide bandwidth and high frequency performance presents an opportunity to dominate emerging 5G Wi-Fi and 5G mobile communications markets."

Today's report continues to put Akoustis on a path to provide more efficient, highly differentiated solutions as a pure play supplier of high-band (4G/LTE/LTE-A) RF BAW filters - a fast growing \$2 billion-plus market that today is dominated by two RF module manufacturers.

Akoustis has identified and met with multiple design clients over the last several months to share its single crystal resonator results and RF filter designs. The Company has received positive feedback from the engagements, as well as received key performance specifications for resonators and RF filters. Akoustis is currently working towards performance requirements in support of engagements with potential design clients and strategic partners.

About Akoustis

Akoustis™ (<http://www.akoustis.com>) is a high-tech RF filter solutions company that manufactures its unique, patent-pending BulkONE™ technology to produce single-crystal bulk acoustic wave (BAW) filters for the mobile-wireless industry, which facilitate signal acquisition and accelerate band performance between the antenna and the back end of mobile devices. Its BulkONE™ technology will service the fast growing multi-billion dollar market of device OEMs, network providers, and consumers to diminish Front End phone heat, battery drain and signal loss -- all considered to be directly related to current RF polycrystalline filter technologies' limitations. Akoustis' "fables" business model is capital efficient, leveraging existing manufacturing infrastructure in the semiconductor industry. Akoustis™ is located in the Piedmont technology corridor between Charlotte and Raleigh, North Carolina.

Forward-Looking Statements

Statements in this press release that are not descriptions of historical facts are forward-looking statements that are based on management's current expectations and assumptions and are subject to risks and uncertainties. In some cases, you can identify forward-looking statements by terminology including "anticipates," "believes," "can," "continue," "could," "estimates," "expects," "intends," "may," "plans," "potential," "predicts," "should," "will," "would" or the negative of these terms or other comparable terminology. Factors that could cause actual results to differ materially from those currently anticipated include, without limitation,

- risks relating to the results of our research and development activities, including uncertainties relating to semiconductor process manufacturing;
- the early stage of our BulkONE™ technology presently under development;
- our need for substantial additional funds in order to continue our operations and the uncertainty of whether we will be able to obtain the funding we need;
- our ability to retain or hire key scientific, engineering or management personnel; our ability to protect our intellectual property rights that are valuable to our business, including patent and other intellectual property rights;
- our dependence on third-party manufacturers, suppliers, research organizations, testing laboratories and other potential collaborators;
- our ability to successfully market and sell our technologies;
- the size and growth of the potential markets for any of our technologies, and the rate and degree of market acceptance of any of our technologies;
- competition in our industry; and
- regulatory developments in the U.S. and foreign countries.

In light of these risks, uncertainties and assumptions, the forward-looking statements regarding future events and circumstances discussed in this press release may not occur, and actual results could differ materially and adversely from those anticipated or implied in

the forward-looking statements. You should not rely upon forward-looking statements as predictions of future events. The forward-looking statements included in this presentation speak only as of the date hereof, and, except as required by law, we undertake no obligation to update publicly or privately any forward-looking statements for any reason after the date of this presentation to conform these statements to actual results or to changes in our expectations. The materials do not constitute an offer to sell, or the solicitation of any offer to buy, any securities of Akoustis, or any other entity whatsoever. Any representation to the contrary by any party should be ignored.

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