

## Rapid Expansion of Bosch Consumer MEMS Portfolio: Akustica Introduces Four New HD Voice Microphones

- ▶ Delivers new level of flexibility for designers
- ▶ New analog and digital microphones give manufacturers easy upgrade path to HD voice quality
- ▶ Manufactured for quality, reliability and performance by world's #1 MEMS sensor supplier: Bosch

PITTSBURGH, Penn. –Nov. 28, 2012– [Akustica, Inc.](#), a Bosch Group company developing MEMS microphones, today announced a complete analog and digital family of top- and bottom-port high definition (HD) voice microphones for smartphones, tablets and other consumer electronics. The high 63dB signal-to-noise ratio (SNR), super wideband frequency response, and tightly matched +/-2dB sensitivity of the microphones support the growing trend in the mobile device market to utilize higher-performance audio components along with noise-processing algorithms to deliver HD voice quality in mobile devices.

Akustica's new microphones are also drop-in replacements for today's most commonly used MEMS microphones, providing a straightforward path for manufacturers to upgrade current designs to meet market demand for more natural-sounding conversation and improved speech recognition accuracy that is achieved through HD voice-quality components. The latest additions to Bosch's extensive consumer MEMS portfolio, the microphones are also manufactured by Bosch, thus leveraging the high-volume capability, quality and reliability of the world's top MEMS sensor supplier.

### HD Voice Performance, Design Flexibility

Part-to-part consistency is particularly important to achieve HD voice quality for end users. Multi-microphone noise suppression algorithms rely on well-matched acoustic characteristics among the microphones for optimized

performance. All four of Akustica's new microphones deliver the same high SNR, flat frequency response and matched sensitivity, giving manufacturers the freedom to select the microphone with the most convenient mechanical and electrical configuration for their device design – without sacrificing HD voice performance. Pin-for-pin compatibility with the most popular form factors used in today's mobile devices helps to simplify the upgrade to better-sounding systems.

“There is a groundswell of support behind HD voice from wireless carriers, mobile chipset suppliers and mobile-device manufacturers,” said Davin Yuknis, vice president, sales and marketing, Akustica. “That’s because the HD voice experience mirrors the emotional nuance of a conversation to the point where you feel as if you are talking face-to-face and not over a phone.”

“And sound quality is determined at the microphone, the first component in the audio chain,” added Yuknis. “If the noise is too high or the microphone cuts off important voice-band frequencies right at the start, that performance cannot be recovered downstream.”

### **The Bosch Advantage for Akustica Customers**

With more than 20 years of MEMS production experience, Bosch is the industry's only company to design and manufacture its consumer and automotive MEMS chips entirely in-house. This approach provides advantages to customers. While other consumer MEMS suppliers are often forced to purchase their MEMS chips from third-party suppliers to speed time to market, Bosch leverages its in-house technology and expertise in MEMS design, development and manufacturing to quickly introduce innovative new products. Bosch's rapidly expanding consumer MEMS portfolio is a case in point. It includes microphones from Akustica and inertial, magnetic and pressure sensors, as well as sensor-fusion software, from Bosch Sensortec, another Bosch Group company.

“Bosch supplies MEMS sensors to nearly all of the world's top-tier auto manufacturers – an industry that essentially demands zero defects and a continuous supply of components,” said Klaus Meder, president of the Automotive Electronics division, Robert Bosch GmbH. “Similarly, Bosch extends its extremely high-quality standards throughout all of its product lines, regardless of the market being served. Consumer-electronics manufacturers that use Akustica HD voice MEMS microphones benefit from the integration ease and flexibility delivered by these new microphones as well

as reap the rewards of working with a high-quality and high-volume supplier like Bosch.”

### **Market Growth for Microphones**

According to Jérémie Bouchaud, director and principal analyst for MEMS & Sensors at IHS, the worldwide MEMS microphone market is expected to grow to more than 4 billion units by 2016, as compared to the 700 million shipped in 2010. The reason, he said, is that the number of microphones used in each smartphone has already gone from one to two and in some cases even three — a number that may continue to grow while mobile device manufacturers use sound input quality as a differentiating feature.

“With a market this large, there is not only room for many suppliers, but multiple suppliers are often required by the biggest MEMS microphone purchasers,” said Bouchaud. “This represents a tremendous opportunity for reliable, high-volume MEMS microphone suppliers to provide the full portfolio of microphones needed by their customers.”

### **Technical Features and Benefits**

- ▶ Traditional analog (AKU142/342) output in industry-standard 2.95 x 3.76 x 1.1 mm form factor
- ▶ Digital PDM (AKU240/440) outputs in industry-standard 3.0 x 4.0 x 1.0 mm form factors
- ▶ Top-(AKU142/240) and bottom-(AKU342/440) port designs
- ▶ High SNR of 63 dB (20-20kHz)
- ▶ Flat frequency meets +/-5dB from 50Hz-14kHz, super wideband performance requirements
- ▶ Tightly matched sensitivity of +/-2 dB
- ▶ Matched sensitivity, phase and frequency response provide optimal microphone array performance
- ▶ Faraday-shielded-packages for radio frequency (RF) and electromagnetic (EM) immunity
- ▶ Support for ultrasonic frequencies

### **Availability**

The AKU142, AKU342, AKU240 and AKU440 are currently sampling to lead customers, and will be ramping to mass production in Q1 2013. To order or to receive technical information on these products, please visit

[www.akustica.com](http://www.akustica.com) or contact: [sales@akustica.com](mailto:sales@akustica.com).

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*Akustica is a wholly owned subsidiary of [the Bosch Group](#) and a top supplier of silicon microphone products that are improving voice-input quality in a host of voice-enabled applications, from mobile handsets, tablets and headsets to Internet telephony on notebooks and PC camera modules. The company offers worldwide customer support services, from design-in services to post-production quality assurance. Akustica is a global organization with corporate headquarters in Pittsburgh, PA; regional offices in Taiwan and Shanghai; and a worldwide team of distributors. More information about Akustica is available at [www.akustica.com](http://www.akustica.com) or by calling +412.390.1730.*

*The Bosch Group is a leading global supplier of technology and services. In the areas of automotive and industrial technology, consumer goods, and building technology, more than 300,000 associates generated sales of 51.5 billion euros in fiscal 2011. The Bosch Group comprises Robert Bosch GmbH and its roughly 350 subsidiaries and regional companies in some 60 countries. If its sales and service partners are included, then Bosch is represented in roughly 150 countries. This worldwide development, manufacturing, and sales network is the foundation for further growth. Bosch spent some 4.2 billion euros for research and development in 2011, and applied for over 4,100 patents worldwide. With all its products and services, Bosch enhances the quality of life by providing solutions which are both innovative and beneficial.*

*Further information is available online at [www.bosch.com](http://www.bosch.com) and [www.bosch-press.com](http://www.bosch-press.com)*