

Press Release



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Big performance, small package **Akustica's Newest MEMS Microphones Target Smartphones and Wearables**

- ▶ Four new HD voice MEMS microphones deliver superior voice capture for multi-microphone applications
- ▶ New line-up features AKU346, the only MEMS microphone to achieve a 64dB SNR in a tiny 6mm² footprint
- ▶ Akustica/Bosch in-house MEMS design and manufacturing capability enables more rapid product generations

PITTSBURGH – [Akustica](#), Inc., a Bosch Group company and leading provider of MEMS microphones, has added four new high-performance analog microphones to its high definition (HD) voice product line, including the AKU346, the industry's smallest MEMS microphone to achieve 64dB SNR. Designed to meet the size-performance constraints of smartphones and even the smallest wearables, the new HD voice microphones combine small footprint, high signal-to-noise ratio (SNR), tight sensitivity matching, and a super-wideband frequency response to improve intelligibility and speech-recognition accuracy in consumer-electronic devices.

New innovations in design and manufacturing enable an inherently guaranteed +/-1dB sensitivity matching between microphones. This microphone-to-microphone uniformity, along with the high SNR of the new HD voice microphones, fulfills a critical need for consumer-electronic device manufacturers who incorporate more than one microphone along with noise suppression algorithms into their devices. These algorithms generally rely on well-matched, high-performance microphones for optimization of noise cancellation and speech recognition accuracy.

Particularly challenging use cases for speech recognition are noisy environments and applications where the speaker is far away (>3 feet) from the microphones. In these situations, testing has shown that even a small improvement in SNR (1-2dB) can lead to dramatic improvements in command accuracy rates (>5%). A few percentage points of accuracy can make the difference between speech recognition ubiquity and

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obsolescence. This has led device manufacturers to continually look for higher performance and more uniform microphones that can meet the needs of their multi-microphone application without incurring the extra costs commonly charged today for binning and sorting after final test.

“The need for the highest-performing multi-microphone solutions is growing rapidly in the smartphone market, where the average number of microphones per phone has been steadily increasing for the last few years,” said Jérémie Bouchaud, director and senior principal analyst, MEMS & Sensors, IHS. “Today, the use of two microphones has become a standard feature for smartphones. Higher-end phones can have upwards of four microphones, further increasing the need for high SNR and tighter sensitivity matching like that provided by Akustica’s new microphones.”

Bouchaud also pointed out that MEMS microphones achieving ≥ 64 dB SNR comprise the fastest-growing portion of the overall MEMS microphone market and are expected to generate 50% of the revenue of this important market segment by 2017.

AKU346 – Industry’s Smallest MEMS Microphone with 64dB SNR

With a footprint of just 6mm^2 and an ultra-thin 0.93mm height, the AKU346 utilizes 33 percent less design space than a typical industry standard bottom-port microphone but still achieves a 64dB SNR--making it particularly well suited for use in small wearable accessories such as wired and wireless headsets, smartwatches and glasses.

AKU143, AKU345, AKU344

The AKU143, AKU345, and AKU344 are top- and bottom-port microphones with a higher SNR of 65dB, and are footprint and pin-for-pin compatible with previous generations of Akustica HD voice microphones. The industry standard form factors of all three microphones provide a straightforward path for upgrading performance of current designs.

All four of the new microphones can also support ultrasonic applications such as gesture recognition, gaming, pens and location detection.

In-house MEMS Design and Manufacturing Capability

Akustica’s new generation of HD voice microphones round out a complete portfolio of Bosch MEMS sensors supporting the human-machine interface (HMI) within consumer-electronic devices, and is another demonstration of Bosch’s commitment to consistently delivering high-performance, high-volume and high-quality MEMS sensors. With in-house design teams for MEMS, circuit design, and packaging, and more than 1000 MEMS patents and 20+ years of MEMS manufacturing experience, Akustica has

quickly been able to introduce a new generation of HD voice microphones with higher performance, more uniformity, greater robustness, and smaller footprints. Additionally, Akustica's customers now benefit from the additional economies of scale gained by manufacturing in Bosch's advanced 8" (200mm) wafer fabrication facility in Reutlingen, Germany.

"In-house MEMS design and manufacturing speeds new product development and allows us to be a reliable and valuable partner for our customers," said Horst Muenzel, CEO and general manager, Akustica. "We are committed to delivering new and compelling features to our customers while also adhering to stringent Bosch principles of quality and environmental responsibility. As a result, our customers know they can depend on us to deliver high volumes of MEMS microphones on time and in-spec with the high levels of performance, quality, and reliability that they have come to expect from Bosch."

Availability

Samples of all four new HD voice microphones are available now for lead customers with mass production planned for Q2 2014. For customer pricing information, please visit <http://www.akustica.com/contact.asp> to find a local sales representative. For more information and datasheets for these products, please visit www.akustica.com.

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About Akustica:

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 phones, laptops and tablets to small wearable accessories like headsets. The company offers world-wide 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. For more information about Akustica, go to: www.akustica.com.

The Bosch Group is a leading global supplier of technology and services. According to preliminary figures, its roughly 281,000 associates generated sales of 46.4 billion euros (\$61.6 billion) in 2013. The Bosch Group comprises Robert Bosch GmbH and its more than 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. Its operations are divided into four business sectors: Automotive Technology, Industrial Technology, Consumer Goods, and Energy and Building Technology. This worldwide development, manufacturing, and sales network is the foundation for further growth. In 2013, Bosch applied for some 5,000 patents worldwide. The Bosch Group's products and services are designed to fascinate, and to improve the quality of life by providing solutions which are both innovative and beneficial. In this way, the company offers technology worldwide that is "Invented for life." Additional information on the global organization is available online at www.bosch.com, www.bosch-press.com, and <http://twitter.com/BoschPresse>.*

**Due to a change in legal rules governing consolidation, 2013 figures can only be compared to a limited extent with 2012 figures. Exchange rate: 1 EUR = \$1.32812*

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