21 December 2018

The Manager
Company Announcements Office
ASX Limited
Exchange Centre
20 Bridge Street
Sydney NSW 2000

Digital Speaker Development Update – 3 Major Breakthroughs

Dear Sirs,

Audio Pixels is pleased to update its shareholders as to 3 major technological breakthroughs recently achieved by the company.

The first major breakthrough concerns resolving the stiction and charge trapping issues we had using unique and robust charge dissipation mechanism.

As has been noted in previous announcements, proper digital sound reconstruction demands that our elements (pixels) begin and complete their motion within a few millionths of a second. In order to achieve such operational accuracy, the devices must be able to repeatedly respond to electrical commands with sub-microsecond precision. Certain adverse effects inherent to electrostatically actuated MEMS devices disrupt such precision. Of particular concern in our devices is a phenomenon known as “stiction”, which occurs naturally during normal operation. Electrical charges accumulate or penetrate the surface thereby altering the attraction forces which in turn slows down or even prevents the release of the moving element.

Audio Pixels is not alone. This issue has attracted much attention and study throughout the industry. Various “anti-stiction” approaches have been developed and successfully used throughout the industry, each optimized to meet specific characteristics that are influenced by many variable factors (such as voltages, cycle frequency, speed, timing, materials, humidity, temperature etc.).

Having tried several such “off-the-shelf” approaches the company ultimately concluded that such solutions are inadequate for our requirements, as the relatively larger amplitudes of our devices necessitates the use of significantly higher operating voltages, than is customary in most other MEMS devices.

The company re-assessed the issue and devised 3 unique approaches to supress the specific adverse effects intrinsic in our device. All 3 approaches were fabricated, vigorously tested and proven to work. One specific approach was selected not only because it proved to be the exceptionally robust and effective, but also because of the minimal disruption and low cost involved in implementing this approach into existing

structure designs and fabrication methods. **This solution has (so far) achieved nearly 100,000,000,000 repeatable cycles without failure.**

Patents have been authored as this unique approach is potentially applicable across a wide variety of applications throughout the MEMS industry.

The second major breakthrough involves the “accidental” invention of a simplified structure, that has so far proven to be highly efficient in generating low frequencies. During development of our devices we routinely design and fabricate partial structures that are used to test and optimize specific electromechanical features of the device. Such simplified structure designs were also used to expedite the development and test of the anti-stiction solutions. Several months ago, we implemented our unique pressure generating mechanisms on one such simplified structure.

Contrary to known convention (and our own estimates) the devices produced significant sound pressure. Expanding on this finding, specific wafers and algorithms were designed and fabricated to further explore the characteristics of this “simplified structure design”. The rational being that such patentable structures would be significantly less complex and less costly to fabricate. **The recently received wafers have so far proven to provide exceptional performance in particular in generating low frequencies (100Hz and below).**

The third major breakthrough pertains to the advancement in reproducing sound. Resolving operational stability of the devices enabled the company to take detailed acoustic measurements and make great strides furthering the playing capabilities of our devices. The primary activity involves adjustment of the driving schemes and development of new functional algorithms to take advantage of the physical realities of the simplified structures. The new algorithms were first designed to play sine-waves (at any desired frequency). As every acoustic professional will attest, production of sine waves cements the fundamental building blocks for playing any sound.

Early testing indicates unrivalled acoustic output – the devices have been tested to reproduce frequencies below 100Hz (by comparison the very best similar sized analog speakers have a lower limit of roughly 800Hz or 3 octaves above ours).

While development is not yet complete, we believe these breakthroughs indicate significant progress the company has made toward delivering our breakthrough technology to the market.

Yours faithfully

Fred Bart
Chairman

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About Audio Pixels Holdings Limited

Audio Pixels Limited, founded in 2006, is a wholly owned subsidiary of Audio Pixels Holdings Limited, listed in Australia under the stock code of AKP (Level 1 ADR's on OTC-NASDAQ International: ADPXY). Backed by exceptional multidisciplinary scientific research, design, and production capabilities, Audio Pixels has become a world leader in digital loudspeaker technologies. Audio Pixels' patented technologies employ entirely new techniques to generate sound waves directly from a digital audio stream using micro-electromechanical structures (MEMS). Its revolutionary technological platform for reproducing sound enables the production of an entirely new generation of speakers that will exceed the performance specifications and design demands of the world's top consumer electronics manufacturers. For more information, visit www.audiopixels.com.au/.

Forward-looking statements

This release may contain certain forward-looking statements with respect to the financial condition, results of operations and business of AKP and certain of the plans and objectives of AKP with respect to these items. By their nature, forward-looking statements involve risk and uncertainty because they relate to events and depend on circumstances that will occur in the future and there are many factors that could cause actual results and developments to differ materially from those expressed or implied by these forward-looking statements.

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