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Press release

P3818D

# STMicroelectronics Brings Superior Indoor and Undercover Navigation to Mobiles and Wearables

- *All-in-one eCompass with innovative magnetic-sensing technology delivers benchmark accuracy with superior temperature stability*
- *Enables high-precision Pedestrian Dead Reckoning, to enhance user experience of fitness tracking/mapping and indoor-navigation apps*
- *Integration of high-performance MEMS accelerometer saves space and power compared to existing alternatives*

**Geneva, May 4, 2016** – Smartphones, as well as smartwatches, fitness trackers and other wearables are about to get better at guiding users and mapping their sporting achievements even where satellite navigation cannot work, using the latest electronic compass (eCompass) from STMicroelectronics (NYSE: STM), a global semiconductor leader serving customers across the spectrum of electronics applications.

Fitness-tracking smartphone apps, smartwatches, and bands need continuous location data for mapping and recording, and accuracy is critical for wearers who like to monitor their progress and share achievements online. A built-in eCompass helps calculate location when satellite signals are unavailable, such as inside buildings or when running or cycling under tree cover. However, current solutions can give errors of about 10° in latitudes such as Northern Italy or Northern California. This can put the user off course by 150 meters or more in every 1000 meters travelled.

ST's LSM303AGR eCompass cuts the heading error to less than 4°, leveraging the Company's proprietary technology for manufacturing high-accuracy magnetic sensors. This enhanced accuracy, combined with ultra-low-power operation consuming up to 50% less than competing devices when in low-power mode, is particularly well suited to high-precision Pedestrian Dead Reckoning (PDR) on mobile devices.

The LSM303AGR also enhances dead-reckoning accuracy in applications such as automotive navigation, and maintains accuracy over the full temperature range from -40°C to 85°C, whereas competing devices can vary by as much as 35% or more

over small intervals such as between normal room temperature and human-body temperature.

“The industry-leading technology behind ST’s new eCompass further extends our lead in MEMS sensing for positioning and motion detection in consumer devices,” said Andrea Onetti, Group Vice President and General Manager of MEMS Sensors Division, STMicroelectronics. “High-precision PDR, enabled by this device, will significantly enhance the user experience delivered by apps including fitness trackers and personal navigation on smartphones and devices like smart watches, which IHS predicts will exceed 100 million units by 2020[1].”

ST’s new LSM303AGR eCompass is available now, packaged as a 2mm x 2mm x 1mm 12-lead LGA, priced from $1.485 for orders of 1000 pieces.

**Further Technical Information:**

As an all-in-one eCompass IC fabricated on a single die, the LSM303AGR combines a 3-axis MEMS accelerometer leveraging ST’s proven ThELMA[2] technology and a very compact 3-axis Anisotropic Magneto-Resistive (AMR) sensor that delivers higher sensitivity and lower noise than conventional Hall sensors. ST’s own AMR manufacturing process technology gives the LSM303AGR superior temperature stability compared to alternatives made using Giant Magneto-Resistive (GMR) or Tunnel Magneto-Resistive (TMR) technology. ST’s AMR sensor also has high dynamic range, which further contributes to the device’s accuracy by preventing magnetic saturation in areas of high ambient-field strength.

ST has tested the LSM303AGR’s magnetic-sensing accuracy at various latitudes and recorded superior accuracy and temperature stability over current eCompass ICs and pure magnetic sensors from competing manufacturers.

**About STMicroelectronics**

ST is a global semiconductor leader delivering intelligent and energy-efficient products and solutions that power the electronics at the heart of everyday life. ST’s products are found everywhere today, and together with our customers, we are enabling smarter driving and smarter factories, cities and homes, along with the next generation of mobile and Internet of Things devices.

By getting more from technology to get more from life, ST stands for life.augmented.

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[1] http://press.ihs.com/press-release/technology/apple-watch-success-needed-smartwatch-mega-boom-new-ihs-report-says

[2] ThELMA: Thick Epi-Poly Layer for Microactuators and Accelerometers. One of ST’s processes for the creation of MEMS mechanisms, using wafer-to-wafer bonding and a protective silicon cap. ST is a world leader in MEMS technology, with almost 1,000 MEMS-related patents and patent applications worldwide.

In 2015, the Company's net revenues were $6.90 billion, serving more than 100,000 customers worldwide. Further information can be found at www.st.com.

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