



FOR IMMEDIATE RELEASE

## Epson Develops Compact Atomic Oscillator

-Only 1/16th the size of Epson's previous oscillators but with same long-term frequency stability-



AO6860LAN Atomic Oscillator

- San Jose, California, November 4, 2015

Epson Electronics America, Inc. (EEA) has developed a small, highly stable atomic oscillator, the AO6860LAN, for telecommunications networks and industrial applications. The development of the new oscillator will be presented November 4, 2015, in Edinburgh, UK, at the upcoming ITSF 2015 (International Telecom Sync Forum). Volume production is scheduled to begin in 2016.

The new product makes it possible for Epson's customers to build smaller, more reliable telecommunications infrastructure and test and measurement systems that consume less power. Although Epson has provided atomic oscillators for communications infrastructure equipment in the past, the new product utilizes an original vertical cavity surface-emitting laser and special IC, both designed and manufactured by Epson. These enabled the company to reduce the cubic dimensions of the atomic oscillator to just 75 cc-or 1/16th the size of Epson's earlier 1,200 cc atomic oscillator-without sacrificing long-term frequency stability. The new oscillator also consumes just 1/6th the power of the previous model thanks to an optimized control system.

With the new atomic oscillator and a product lineup that already includes families of high-precision crystal oscillators in the OCXO, VCXO, and TCXO categories, Epson will support the development of small, reliable systems by providing timing devices for a wide range of equipment that are used in the construction of optical telecommunications networks and other future high-capacity networks.

Epson remains committed to serving the telecommunications infrastructure and the test and measurement equipment markets by leveraging its original technology to continue to provide high-stability timing devices and modules.

## **BACKGROUND, MAIN APPLICATIONS AND SPECIFICATIONS**

### **Background**

The amount of data traveling over telecommunications networks has been rapidly growing, spurred by faster transmission speeds, the expansion of big data analysis and ICT, and the spread of the Internet of Things (IoT). The primary requirements for communications infrastructure equipment that support these networks are stability and compactness.

Atomic oscillators, which generate accurate frequencies using the characteristic frequency of a particular atom or molecule, can typically provide accuracy that is two or more orders of magnitude greater than that of crystal oscillators. For this reason, atomic oscillators are used primarily in high-speed communications equipment and high-accuracy test and measurement equipment. Future demand for atomic oscillators is expected to grow as frequency sources for achieving stable communications and measurements. However, it is difficult to reduce the size of atomic oscillators, and, in the past, their size has constrained their use in applications such as base stations, where installation space is limited.

### **Main applications**

Reference signal generators for the following:

- (1) Telecommunications infrastructure equipment
- (2) Broadcast equipment
- (3) Industrial solutions
- (4) Test and measurement equipment

### **Product Specifications**

Product number	AO6860LAN
Short-term frequency stability	0.05 ppb ( $\tau=1$ sec)
Temperature-frequency stability	$\pm 0.2$ ppb (0 to 50°C)
Long-term frequency stability	$\pm 0.05$ ppb/month
Power consumption	3 W
Size	68 x 60 x 18 mm (75 cc or less)

## **About Epson Electronics America, Inc.**

Epson Electronics America, Inc. (EEA) is a subsidiary of Japan-based Seiko Epson Corporation (SEC) and is responsible for sales, marketing and engineering of the product lines of SEC's Microelectronics Device Division in the America's. EEA provides a wide array of timing and frequency control products, integrated circuits, sensing device and system solutions for customer products and applications that require high levels of accuracy, reliability, stability, energy efficiency and compact design. Based in San Jose, California, the EEA Group has three regional offices, more than 40 sales offices in the U.S. and a growing network of exclusive distributors.

[www.eea.epson.com](http://www.eea.epson.com)

## **About Epson**

Epson is a global technology leader dedicated to driving innovations and exceeding customer expectations in printing, visual communications, quality of life and manufacturing. Epson's lineup ranges from inkjet printers, printing systems and 3LCD projectors to industrial robots, smart glasses and sensing systems and is based on original compact, energy-saving, and high-precision technologies.

Led by the Japan-based Seiko Epson Corporation, the Epson Group comprises nearly 72,000 employees in 93 companies around the world, and is proud of its contributions to the communities in which it operates and its ongoing efforts to reduce environmental burdens.

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