

**For Immediate Release**

August 10, 2017

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## **DENSO Develops New 24-GHz Band Submillimeter-wave Radar Sensor**

**– Sensor detects vehicles to the rear and side of the vehicle to help reduce accident risk –**

**KARIYA (Japan)** — DENSO Corporation today announced that it has developed a 24-GHz submillimeter-wave rear and side radar sensor to help enhance vehicle safety systems. The sensor is used in the 2018 Toyota Camry released this past July.

It's strategically built into the rear bumper of the vehicle to detect other vehicles likely to enter the driver's blind spot to the rear and side, as well as vehicles approaching from the rear on the left and right when reversing. The sensor is part of a larger system that helps drivers identify and navigate around other vehicles when changing lanes or reversing out of a parking space, and controls the autonomous emergency braking function to avoid imminent collisions.

To enable accurate detection whether moving forward or reversing, a phase shifter switches the sensing direction and range of the submillimeter-wave radar sensor. Radio wave transmission and receiving, and phase shifter functions also run through separate integrated circuits (ICs) to reduce the size of the sensor.

In 2003, DENSO became the world's first company to develop and commercialize an electronically scanning in-vehicle millimeter-wave radar sensor, which utilized digital beamforming. By advancing these technologies DENSO continues to deliver on its mission to build a safe and secure automotive society for all.

- The semiconductor wafer for MMIC\* manufactured by TowerJazz (<http://towerjazz.com>) is used to stabilize the output level and receiving sensitivity.

\* Monolithic Microwave Integrated Circuit

### **About DENSO in North America**

DENSO is a leading global automotive supplier of advanced technology, systems and components in the areas of thermal, powertrain control, electronics and information and safety. With its North American headquarters located in Southfield, Michigan, DENSO employs more than 23,000 people at 30 consolidated companies and affiliates across the North American region. Of these, 28 are manufacturing facilities located in the United States, Canada and Mexico. In the United States alone, DENSO employs more than 17,000 people in Alabama, Arkansas, California, Iowa, Georgia, Kentucky, Michigan, North Carolina, Ohio, Pennsylvania, South Carolina, Tennessee and Texas. DENSO's North American consolidated sales totaled US\$9.6 billion for the fiscal year ending March 31, 2017. For more information, go to [www.denso.com/us-ca/en](http://www.denso.com/us-ca/en). Connect with DENSO on Facebook at [www.facebook.com/DENSOinNorthAmerica](https://www.facebook.com/DENSOinNorthAmerica).

### **DENSO Worldwide**

DENSO Corp., headquartered in Kariya, Aichi prefecture, Japan has more than 200 subsidiaries and affiliates in 38 countries and regions (including Japan) and employs more than 150,000 people worldwide. Consolidated global sales for the fiscal year ending March 31, 2017, totaled US\$40.4 billion. Last fiscal year, DENSO spent 8.8 percent of its global consolidated sales on research and development. DENSO common stock is traded on the Tokyo and Nagoya stock exchanges. For more information, go to [www.denso.com](http://www.denso.com), or visit our media website at [www.denso.com/global/en/news/media-center/](http://www.denso.com/global/en/news/media-center/)

### About DENSO Corporation

DENSO Corp., headquartered in Kariya, Aichi prefecture, Japan, is a leading global automotive supplier of advanced technology, systems and components in the areas of thermal, powertrain control, electronics and information and safety. Its customers include all the world's major carmakers. Worldwide, the company has more than 200 subsidiaries and affiliates in 38 countries and regions (including Japan) and employs more than 150,000 people. Consolidated global sales for the fiscal year ending March 31, 2017, totaled US\$40.4 billion. Last fiscal year, DENSO spent 9.0 percent of its global consolidated sales on research and development. DENSO common stock is traded on the Tokyo and Nagoya stock exchanges. For more information, go to [www.denso.com](http://www.denso.com), or visit our media website at

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(Product photos)

