

January 11, 2018



Leading Automotive, Telecom and ITS Companies Unveil First Announced Cellular V2X Trials in Japan

--Continental, Ericsson, Nissan, NTT DOCOMO, OKI and Qualcomm Technologies Join Forces to Host C-V2X Trials in Japan in 2018 to Validate and Demonstrate C-V2X Benefits--

TOKYO, Jan. 12, 2018 /PRNewswire/ -- Continental, Ericsson, Nissan, NTT DOCOMO, INC., OKI and Qualcomm Technologies, Inc., a subsidiary of Qualcomm Incorporated (NASDAQ: QCOM), announced today plans to carry out their first Cellular Vehicle-to-Everything (C-V2X) trials in Japan. The objective is to validate and demonstrate the benefits of C-V2X using direct communication technology defined by the 3rd Generation Partnership Project (3GPP) in their Release 14 specifications. The trials are designed to show the enhanced range reliability and latency benefits of C-V2X direct communications operated in 5 GHz band. Additionally, the C-V2X trials are designed to demonstrate the complementary benefits of network-based communications utilizing LTE-Advanced (LTE-A). The trial results will help develop the ecosystem by providing inputs to the relevant stakeholders, including ITS-related organizations and government agencies, as we prepare for the connected car of the future and the industry's evolutionary transition towards 5G New Radio (NR), the new global cellular standard being defined in 3GPP.

While complementing other Advanced Driver Assistance System (ADAS) sensors, such as radar, lidar, and camera systems, C-V2X provides non-line-of-sight (NLOS) low latency awareness with longer range and cloud capabilities, and designed to extend a vehicle's ability to see, hear and communicate further down the road, even at blind intersections.

C-V2X radio technology is state-of-the-art cellular technology and is being validated for global deployments, and leverages the upper layer protocols developed by the automotive industry over years of research to support new advanced end-to-end use cases. C-V2X direct communications provide enhanced range and reliability without relying on cellular network assistance or coverage.

Preparation work is well underway with the trial expected to begin in 2018 and the use cases are designed to focus on Vehicle-to-Vehicle (V2V), Vehicle-to-Infrastructure (V2I) and Vehicle-to-Pedestrian (V2P) direct communications, as well as Vehicle-to-Network (V2N) operations over cellular network-based wide area communications with cloud access.

For the field trials, Continental will utilize the Qualcomm[®] C-V2X Reference Design, which features the Qualcomm[®] 9150 C-V2X chipset with integrated Global Navigation Satellite System (GNSS) capability to build connected car systems and integrate the systems into Nissan vehicles. Nissan will perform V2X use case selection and develop test scenarios with key performance indicators (KPIs) for C-V2X technology validation. OKI, one of the leading companies in ITS, will bring their expertise in roadside unit (RSU) infrastructure and applications to demonstrate V2I as a viable technology for advanced traffic applications by integrating the Qualcomm[®] 9150 C-V2X chipset into their RSU. Ericsson, as one of the leading companies in the technology and service for telecommunication, will join to the V2N use case discussion, considering a combination of direct communication and LTE-A network technologies. NTT DOCOMO will provide an LTE-A network and V2N applications to demonstrate the benefits of complementary use of network-based communications for a variety of advanced automotive informational safety use cases.

"Connecting vehicles is at the top of our agenda and with more than 20 years of competence in the development of telematics, over 30 million units shipped, and years of V2V safety product development culminating in available V2V communications offerings. We are ready to fully exploit the potential of cellular connectivity to provide advanced vehicle functionalities. Along with Nissan, we plan to show that close cooperation between automotive suppliers, OEMs, mobile operators, infrastructure and chipset suppliers is of high importance to further advance and develop Cellular V2X," said Lars Schultheiss, vice president and head of business unit Infotainment & Connectivity at Continental in Japan.

"The C-V2X solution is unique in that it, within a common technology and eco-system, offers both network-based and direct communication for V2X services. With the network-based communication, there is a possibility to provide traffic safety and traffic efficiency services utilizing already existing coverage and penetration of cellular modems and smartphones. It also provides connectivity to various cloud-based services, providing a range of applications and value-added services. In these trials, all stakeholders are present to showcase the strength of the complete solution covering both connectivity and

different applications. Ericsson is contributing with leading 4G, 5G radio, and network expertise and by leveraging our understanding of the IoT ecosystem," said Erik Ekudden, chief technology officer at Ericsson.

"We are pleased to have the opportunity to participate in this C-V2X trial; we expect this new communication technology is designed to assist us to offer new safety and convenience features," said Tetsuo Sasaki, general manager, connected car and services engineering department, Nissan. "With the data made available by this real-world trial, we will be able to accelerate our development to offer new services in a timely manner, once the 5G technology is available."

"This collaborative project will bring together the invaluable knowledge and experience of world leaders in the automotive and telecom domains, and will be imperative for all parties to underpin their roles in the era of connected cars toward improved road safety and comfort. NTT DOCOMO is determined that our experience in telecommunications system will be indispensable to maximize the values of C-V2X. This project will set a clear path toward connected cars and roads of the future that materializes the power of C-V2X," said Hiroshi Nakamura, Chief Technology Officer at NTT DOCOMO.

"Towards the realization of a connected car society, the functionalities of network infrastructure for V2X must be much more intelligent. With OKI's strong track record of ITS infrastructure deployment, we expect to achieve great results through this trial regarding the applicability of V2X for ITS with a view to the evolution towards 5G in conjunction with other member companies," said Yukio Kato, general manager, social infrastructure solutions division, ICT business division of OKI.

"We are pleased to be working alongside such a dynamic group of forward-thinking companies to demonstrate the capabilities of C-V2X technology in the first announced Japanese trials. With its direct communications capabilities, C-V2X is ideally suited to be an important factor in facilitating enhanced safety consciousness and driver assistance. This Japan trial is a milestone in the global deployment of C-V2X technology which is expected to be featured in production vehicles by 2020," said Nakul Duggal, vice president of product management, Qualcomm Technologies, Inc.

About Continental

Continental develops pioneering technologies and services for sustainable and connected mobility of people and their goods. Founded in 1871, the technology company offers safe, efficient, intelligent and affordable solutions for vehicles, machines, traffic and transportation. In 2017, Continental generated preliminary sales of around €44 billion and currently employs more than 233.000 people in 56 countries.

For more information, please visit our websites www.continental-press.com and www.continental-automotive.com.

About Ericsson

Ericsson is a world leader in communications technology and services with headquarters in Stockholm, Sweden. Our organization consists of more than 111,000 experts who have provided customers in 180 countries with innovative solutions and services. Together we are building a more connected future where anyone and any industry is empowered to reach their full potential. Net sales in 2016 were SEK 222.6 billion (USD 24.5 billion). Ericsson is listed on NASDAQ OMX stock exchange in Stockholm and the NASDAQ in New York. Read more on www.ericsson.com.

About Nissan

Nissan is a global full-line vehicle manufacturer that sells more than 60 models under the Nissan, INFINITI and Datsun brands. In fiscal year 2016, the company sold 5.63 million vehicles globally, generating revenues of 11.72 trillion yen. In fiscal 2017, the company embarked on Nissan M.O.V.E. to 2022, a six-year plan targeting a 30% increase in annualized revenues to 16.5 trillion yen by the end of fiscal 2022, along with a core operating profit margin of 8% and cumulative free cash flow of 2.5 trillion yen. As part of Nissan M.O.V.E. to 2022, the company plans to extend its leadership in electric vehicles, symbolized by the world's best-selling all-electric vehicle in history, the Nissan LEAF. Nissan's global headquarters in Yokohama, Japan, manages operations in six regions: Asia & Oceania; Africa, the Middle East & India; China; Europe; Latin America; and North America. Nissan has a global workforce of 247,500 and has been partnered with French manufacturer Renault since 1999. In 2016, Nissan acquired a 34% stake in Mitsubishi Motors. Renault-Nissan-Mitsubishi is today the world's largest automotive partnership, with combined annual sales of more than 10 million vehicles a year. For more information about our products, services and commitment to sustainable mobility, visit nissan-global.com.

About NTT DOCOMO

NTT DOCOMO, Japan's leading mobile operator with over 75 million subscriptions, is one of the world's foremost contributors to 3G, 4G and 5G mobile network technologies. Beyond core communications services, DOCOMO is challenging new frontiers in collaboration with a growing number of entities ("+d" partners), creating exciting and convenient value-added services that change the way people live and work. Under a medium-term plan toward 2020 and beyond, DOCOMO is pioneering a leading-edge 5G network to facilitate innovative services that will amaze and inspire customers beyond their expectations. DOCOMO is listed on stock exchanges in Tokyo (9437) and New York (DCM). www.nttdocomo.co.jp/english.

About OKI

Founded in 1881, OKI Electric Industry is Japan's leading telecommunications manufacturer in the Info-telecom field.

Headquartered in Tokyo, Japan, OKI provides top-quality products, technologies, and solutions to customers through its info-telecom systems and printer operations. Its various business divisions function synergistically to bring to market exciting new products and technologies that meet a wide range of customer needs in various sectors. Visit OKI's global website at <http://www.oki.com/>.

About Qualcomm

Qualcomm Incorporated (NASDAQ: QCOM) is a world leader in 3G, 4G and next-generation wireless technologies. Qualcomm Incorporated includes Qualcomm's licensing business, QTL, and the vast majority of its patent portfolio. Qualcomm Technologies, Inc., a subsidiary of Qualcomm Incorporated, operates, along with its subsidiaries, substantially all of Qualcomm's engineering, research and development functions, and substantially all of its products and services businesses, including its semiconductor business, QCT. For more than 30 years, Qualcomm ideas and inventions have driven the evolution of digital communications, linking people everywhere more closely to information, entertainment and each other. For more information, visit Qualcomm's website, OnQ blog, Twitter and Facebook pages.

Qualcomm is a trademark of Qualcomm Incorporated, registered in the United States and other countries. Qualcomm C-V2X Reference Design and Qualcomm 9150 C-V2X chipset are products of Qualcomm Technologies, Inc.

Qualcomm Contacts:

Pete Lancia, Corporate Communications

Phone: 1-858-845-5959

Email: corpcomm@qualcomm.com

John Sinnott, Investor Relations

Phone: 1-858-658-4813

Email: ir@qualcomm.com

View original content: <http://www.prnewswire.com/news-releases/leading-automotive-telecom-and-its-companies-unveil-first-announced-cellular-v2x-trials-in-japan-300581245.html>

SOURCE Qualcomm Incorporated