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# Qualcomm Announces Showcase of Connectivity Leadership with Debut of Several Live Demonstrations

## -- Highlights Include Gigabit Class LTE Speeds with Qualcomm Snapdragon X16 LTE Modem, Additional 4G, 5G and Wi-Fi Milestones at Mobile World Congress --

SAN DIEGO, Feb. 17, 2016 /PRNewswire/ -- Qualcomm Incorporated (NASDAQ: QCOM), along with its subsidiary, Qualcomm Technologies, Inc., today announced plans to demonstrate some of its latest innovative technologies for the first time at Mobile World Congress 2016 in Barcelona. The live demos available include industry milestones such as breaking the 1Gbps barrier with the Qualcomm® Snapdragon™ X16 LTE modem, 4x4 LTE MIMO in a smartphone and several examples showcasing the future of LTE-based and 5G connectivity.

Among the demonstrations on-site, Qualcomm Technologies will preview Gigabit Class LTE speeds using its recently-announced Snapdragon X16 LTE modem. Gigabit Class LTE represents a major milestone for the mobile industry, with download speeds that are up to ten times as fast as first generation LTE devices, and up to 500 times those of early 3G devices. In collaboration with Ericsson and its Ericsson Networks Software 16B, the demo will show how download speeds up to 1 Gbps can be achieved using a combination of 3x carrier aggregation, 4x4 MIMO on two aggregated carriers, and higher-order modulation using 256-QAM.

Qualcomm Technologies will also demonstrate 4x4 LTE MIMO in a smartphone prototype test-developed by Sony Mobile Communications, based on the Snapdragon 820 processor with X12 LTE. This major technical achievement represents the mobile industry's first implementation of 4-layer MIMO in a smartphone form factor. The X12 LTE modem's 4x4 MIMO capability is designed to allow mobile operators to increase the spectral efficiency of their networks, by doubling LTE throughput on the same amount of spectrum — up to ~400 Mbps in only 20 MHz of spectrum. In addition, this same smartphone prototype will be used to demonstrate the next generation of voice call quality — Ultra HD Voice — using the Enhanced Voice Services (EVS) codec, showcasing its superior call quality compared to traditional HD Voice with the AMR-WB codec. Both the 4x4 MIMO as well as the Ultra HD Voice demos will be in collaboration with Ericsson.

The Company will also highlight the benefits of LTE Wi-Fi Link Aggregation (LWA) using the over-the-air system with commercial-ready converged LTE/Wi-Fi smart gateway integrating Qualcomm® FSM99xx small cells and IPQ40xx solutions, in a single integrated solution, as well as Snapdragon 820 test smartphone. The converged gateway aggregates the LTE and Wi-Fi airlinks and enables smart and dynamic load balancing between LTE and Wi-Fi, as well as provides a unified network to better utilize both licensed and unlicensed spectrum. LWA is designed to allow operators to utilize new and existing Wi-Fi networks to offer superior performance and a seamless user experience.

Two demonstrations of low-power LTE will showcase 4G connectivity for IoT applications. The first demo will showcase how LTE-connected IoT devices can achieve 10 years of battery life on two AA batteries, using the Power Saving Mode (PSM) of the MDM9207-1 modem. The second demo, in collaboration with Ericsson, will offer a preview of the Extended Idle DRX feature that is part of 3GPP Release 13 spec. LTE Extended Idle DRX allows the mobile network and the IoT device to synchronize the timing at which the device awakes to receive data from the network with very long intervals, thereby extending its battery life.

Qualcomm Technologies will feature a number of forward-looking demonstrations providing a glimpse into the future of LTE-based and 5G connectivity. These demos include enhanced LAA (eLAA), which introduces LTE licensed and unlicensed spectrum aggregation in the uplink along with downlink, and MulteFire™, the first-ever tradeshow demonstration of LTE-based technology operating solely in unlicensed spectrum. Both eLAA and MulteFire demos will showcase the benefits of LTE in unlicensed spectrum and its fair coexistence with Wi-Fi. The concept of a neutral host—a small cells deployment that can serve any user and multiple mobile operators—will also be showcased. Qualcomm Technologies will also display a 5G millimeter wave 28 GHz demo, showcasing adaptive beamforming and beam tracking techniques which enable robust and sustained broadband communications operation under line-of-sight (LOS) and non-line-of-sight (NLOS) RF channel conditions and device mobility.

"We're excited to bring several of our newest innovations to Mobile World Congress for the first time. From enabling the first

Gigabit Class LTE with our Snapdragon X16 LTE modem to providing a glimpse into how Qualcomm Technologies is approaching 5G connectivity, these demonstrations show several of our latest technologies we're bringing to the industry," said Tim McDonough, senior vice president of marketing, Qualcomm Technologies, Inc.

Mobile World Congress attendees can view these live demonstrations, as well as many more, in the Qualcomm booth in Hall 3, stand #3E10.

### **About Qualcomm Incorporated**

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.

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#### Qualcomm Contacts:

Pete Lancia, Corporate Communications

Phone: 1-858-845-5959

Email: [corpcomm@qualcomm.com](mailto:corpcomm@qualcomm.com)

Warren Kneeshaw, Investor Relations

Phone: 1-858-658-4813

Email: [ir@qualcomm.com](mailto:ir@qualcomm.com)

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