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Qualcomm Technologies Announces Comprehensive RF Front-End Platform for the Next Generation of Advanced Global Mobile Devices

-- Company Ships Multimode GaAs Power Amplifier Modules and First Dynamic Antenna Tuning Solution for Carrier Aggregation --

SAN DIEGO, Feb. 21, 2017 /PRNewswire/ -- Qualcomm Incorporated (NASDAQ: QCOM) today announced that its subsidiary, Qualcomm Technologies, Inc. (QTI), is introducing a suite of comprehensive RF front-end (RFFE) solutions, making it the first mobile technology provider to develop and commercialize a comprehensive platform spanning from the digital modem to the antenna port. The latest additions to the Qualcomm® RF360™ family of RFFE products are Qualcomm Technologies' first gallium arsenide (GaAs) power amplifier modules (QPA5460, QPA5461, QPA4360 and QPA4361) and the next-generation Qualcomm® TruSignal™ antenna performance enhancement solution (QAT35xx) to drive superior RF performance by utilizing modem intelligence and system-level design and optimization.

The recently announced joint venture between Qualcomm Incorporated and TDK Corporation, RF360 Holdings Singapore PTE. Ltd. (RF360 Holdings) helps build Qualcomm Technologies' comprehensive RFFE technology portfolio. RF360 Holdings brings a legacy of expertise in RF filtering and modules as well as integrated and discrete micro-acoustic components such as multi-technology RF filters, duplexers, multiplexers and extractors, and has an established footprint in flagship smartphones. As a result, Qualcomm Technologies has the in-house capability and access to develop, integrate, manufacture, assemble, test and deliver GaAs and CMOS power amplifiers, BAW, SAW and TC-SAW filters and filter modules, high performance switches, power trackers, antenna tuners and integrated modules - all the components necessary for a comprehensive leading-edge RFFE solution to complement its leading modem technology for next generation mobile devices.

New RF Front-End Module Solutions

As Qualcomm Technologies' first GaAs based products, the QPA546x and QPA436x multimode, multiband power amplifier (MMPA) modules are optimized for envelope-tracking and average power tracking, respectively, and combine high, mid and low band power amplifiers with high performance switches to provide highly integrated modules for regional and global designs with superior power efficiency. QPA5461 is designed to work with the QET4100 envelope tracker and is the first MMPA optimized for High Power User Equipment (HPUE) operation, providing high power-efficiency solutions for devices in LTE TDD networks.

The QPA546x MMPA is part of a modular front-end solution supporting carrier aggregation, that includes a D5328 front-end module (FEMiD) with integrated quadplexer and a D5285 diversity receive (DRX) module. Compatible BAW filters are available for designs requiring higher performance in high bands such as band 41. The D5328 comprises of SAW filters, TC-SAW filters, and proprietary layer-transfer switches. The D5285 diversity receive module includes SAW filters and layer-transfer switches. This modular configuration offers a low part-count solution with low design-in effort for devices that support leading-edge connectivity features such as Gigabit LTE, LTE-Advanced and 4x4 MIMO.

Next-generation Qualcomm® TruSignal™ antenna performance enhancement solutions

Comprising the QAT3550 impedance tuner, the QAT3514 aperture tuner, QAT3522 antenna diversity switch and advanced modem software, the latest generation of Qualcomm Technologies' TruSignal provides a comprehensive antenna performance enhancement technology suite that is the mobile industry's first commercial adaptive antenna tuning solution supporting carrier aggregation. The TruSignal solution is designed to use the modem's intelligent processing power to continuously optimize signal quality and support a consistent user experience across use conditions while maximizing network coverage and battery life for sleek LTE-Advanced mobile devices including smartphones with metal backs. For consumers, this means support for a more consistent data and voice experience indoors and outdoors. For original equipment manufacturers (OEMs), the adaptive tunability of the system helps reduce time-to-certification by addressing the risk of mismatch from antenna redesign iterations.

"The ability to develop the key RFFE components, coupled with our leading modem expertise, allow us to push the

boundary on overall system performance while offering high levels of integration," said James Wilson, vice president and general manager, RFFE modules, Qualcomm Technologies, Inc. "Offering a comprehensive end-to-end solution enables us to make it faster and easier for our customers to create tomorrow's mobile devices, while providing better data speeds, more optimized signal performance and fewer dropped calls to consumers."

The QAT35xx antenna tuning and diversity switch products are supported for use with the Qualcomm® Snapdragon™ 835 processor.

The QPA546x, QPA436x, D5328 and D5285 products are released and sampling today. The QAT35xx solutions are currently in production and are expected to be in commercially available devices soon.

About Qualcomm

Qualcomm's technologies powered the smartphone revolution and connected billions of people. We pioneered 3G and 4G – and now we are leading the way to 5G and a new era of intelligent, connected devices. Our products are revolutionizing industries, including automotive, computing, IoT, healthcare and data center, and are allowing millions of devices to connect with each other in ways never before imagined. Qualcomm Incorporated includes our licensing business, QTL, and the vast majority of our patent portfolio. Qualcomm Technologies, Inc., a subsidiary of Qualcomm Incorporated, operates, along with its subsidiaries, all of our engineering, research and development functions, and all of our products and services businesses, including, our QCT semiconductor business. For more information, visit Qualcomm's website, OnQ blog, Twitter and Facebook pages.

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

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