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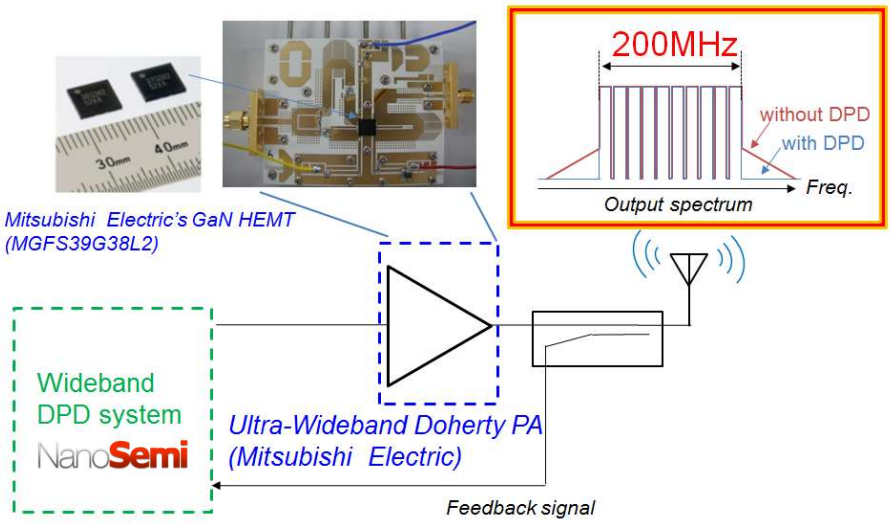
Mitsubishi Electric US, Inc. and NanoSemi, Inc. to Demonstrate Ultra Wide-band Linearized Doherty Amplifier for Next Generation LTE Base Stations at IMS2017 in Honolulu on June 6-8, 2017

CYPRESS, California – May 19, 2017 – Mitsubishi Electric US, Inc. will present a hands-on mini lab showcasing its high-efficiency, wide-band GaN Doherty Amplifier in booth 1827 at the International Microwave Symposium (IMS2017). The symposium will be held June 6-8 at the Hawaii Convention Center, Honolulu, Hawaii.

Mitsubishi Electric Corporation (Information Technology R&D Center and High Frequency and Optical Device Works), along with Mitsubishi Electric Research Laboratories, presented a paper[1] earlier this year at Radio Wireless Week describing this wide-band Doherty power amplifier design technique for next generation LTE base stations using GaN transistor technology. The demonstration at IMS2017 will further illustrate the superb ability to linearize an ultra-wideband signal applied to Mitsubishi Electric's GaN power amplifier using an advanced pre-distortion technique provided by NanoSemi, Inc.

The proliferation of smartphones and tablets will require a dramatic increase in wireless capacity of base stations. To meet this demand, mobile technologies are moving to next generation LTE in which the wireless capacities are increased by allocating multiple simultaneous frequency bands (carrier aggregation) above 3GHz. Operating in multiple simultaneous frequency bands usually requires multiple power amplifiers to cover each frequency band, leading to an increase in the size of base stations.

Conventional base station Doherty power amplifier design presents many challenges to simultaneously achieve both high efficiency and low distortion for wide-band carrier aggregation. Using NanoSemi, Inc.'s digital pre-distortion (DPD) technology, Mitsubishi Electric's wide-band Doherty power amplifier can achieve high efficiencies with up to 200MHz instantaneous bandwidth while maintaining ACLR of -50dBc. With this breakthrough, base station designers gain the ability to design a single flexible LTE power amplifier capable of many carrier aggregation scenarios, even above 3GHz.



Doherty Power Amplifier Performance at 3.5GHz*

Carrier Configuration	Efficiency	Output Power	ACLR
100MHz (5 LTE carriers x 20MHz)	47.9%	+34.0dBm	-50.0dBc
160MHz (8 LTE carriers x 20MHz)	46.2%	+33.9dBm	-50.8dBc
200MHz (4 LTE carriers x 20MHz)	47.5%	+34.2dBm	-50.6dBc
200MHz (10 LTE carriers x 20MHz)	44.4%	+33.2dBm	-50.5dBc

*Data measured at room temperature. Measurements may vary board to board.

IMS 2017 attendees are invited to stop by the Mitsubishi Electric US booth at IMS2017 for more information and to view the latest GaN technology in action.

Visit NanoSemi, Inc. (booth #2030) for additional live demos and details about best in class linearization techniques.

Mitsubishi Electric's full line-up of GaN devices, with frequencies in L-, S-, C-, and Ku-bands at output powers ranging from 2 to 100 watts, supports a wide variety of end-communications applications, including cellular base station, satellite, ground station and point to point.

[1] Yuji Komatsuzaki, Keigo Nakatani, Shintaro Shinjo, Shinichi Miwa, Rui Ma, and Koji Yamanaka, "3.0-3.6 GHz Wideband, over 46% Average Efficiency GaN Doherty Power Amplifier with Frequency Dependency Compensating Circuits," *2017 IEEE Radio and Wireless Week*, Phoenix, AZ.

About Mitsubishi Electric US Semiconductor Division

Mitsubishi Electric US, Inc.'s Semiconductor Division presents a portfolio of semiconductor and electronic devices that helps advance information processing and telecommunications. The division offers next-generation optical devices that support today's rapidly evolving optical telecommunications networks. They include high-frequency gallium nitride, gallium arsenide and silicon RF devices used in a variety of applications from two-way radios to telecommunications satellites. The division also provides leading-edge color TFT-LCD modules designed for high reliability and superior visibility. Mitsubishi

Electric's TFT-LCD modules deliver exceptional performance and excellent color quality in a broad range of indoor and outdoor operating environments. They can be used in such industrial applications as medical, factory automation, agriculture, construction, marine, and aviation. Most recently, the division added contact image sensors for machine vision applications to its product line. Additional information is available at http://us.mitsubishielectric.com/semiconductors/en/index.html.

In addition to semiconductor devices, Mitsubishi Electric US group companies' principal businesses include factory automation equipment, automotive electrical components, elevators and escalators, heating and cooling products, solar modules, electric utility products, and large-scale video displays for stadiums and arenas. Mitsubishi Electric US group companies have roughly 31 locations throughout North America with approximately 4,000 employees.

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About NanoSemi, Inc.
NanoSemi Inc develops breakthrough digital compensators to linearize non-linear dynamic systems such as wireless radios. Its performance -- particularly its spectral efficiency and low power consumption -- gives our customers a considerable competitive advantage in the instrumentation, portable and communication infrastructure markets. For more information about NanoSemi, visit www.nanosemitech.com

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