

Tektronix, IEMN Demonstrate 100 Gb/s Wireless Transmissions Using New IEEE 802.15.3d Standard

Demonstration Uses a Single Carrier Wireless Link in the 300 GHz Band to Achieve 100 Gb/s Data Rate

BEAVERTON, Ore., May 15, 2018 [/PRNewswire/](#) -- Tektronix, Inc., a leading worldwide provider of measurement solutions, and [IEMN](#), a major French research laboratory, [demonstrated](#) a single carrier wireless link traveling at a 100 Gb/s data rate. This demonstration uses advanced data coding, THz photonics and wideband and linear devices to enable ultra fast wireless connections in the 252 - 325 GHz band per the recently published [IEEE 802.15.3d standard](#).

"Achieving 100 Gb/s transmission in a single carrier helps to fill the gap between the worlds of fiber-optics and radio. By combining the concept with dedicated architectures and photonic-based THz circuits we are paving the way for faster wireless transmission than what's possible today," said Guillaume Ducournau, an associate professor at IEMN/CNRS/University Lille working on THz communication systems.

The purpose of the new 802.15.3d standard is to provide for low complexity, low cost, low power consumption, very high data rate wireless connectivity among devices and in the future 'low THz' bands. Potential applications include consumer multimedia, wireless switched point-to-point applications in data centers, wireless backhaul/front haul, intra-device communications and a wide variety of additional use cases such as rapid large multimedia data downloads and file exchanges between two devices in close proximity.

Achieving 100 Gb/s and beyond requires the extension of carrier frequencies to the millimeter/sub-millimeter range, around 300 GHz, also called the "THz band." Using a combination of optical coherent technologies and THz transceivers, this latest demonstration showcased the advances being made toward operational wireless links with THz frequencies and optical-equivalent data rates.

The demonstration was accomplished within the framework of several research projects including the COMTONIQ, Era-net Chistera TERALINKS and TERASONIC ANR projects in THz communications. The French Equipex programs, "FLUX" (high-speed guided fiber/wireless-based advanced data coms) and "ExCELSIOR" (advanced characterization of nano-devices and systems) also supported this effort along with IEMN platform facilities and the RENATECH French nanofabrication network, IRCICA USR-3380. The demonstration was also supported by the CPER "Photonics for society" and contributes to the "digital world" Hub 3 of the I-Site Université de Lille Nord de France.

"Tektronix is delighted to be working in such close collaboration with IEMN on achieving this prestigious breakthrough," said Dr. Klaus Engenhardt, CTO Tektronix EMEA. "It's exciting to see our industry-leading end-to-end transmit and receive solution used to help bridge coherent optical and THz transceiver technologies. Advanced test tools are needed today to generate and characterize signals at 100G, 400G and beyond and Tektronix offers a wide portfolio of optical communication test solutions."

The Tektronix test equipment used in the IEMN demonstration included an [AWG70000 Series 50GS/s arbitrary waveform generator](#), [DPO70000SX 70GHz oscilloscopes](#) and an [OM5110 46GBd coherent optical transmitter](#).

Tektronix has a long history of collaboration with IEMN on THz communications research and most recently supported the [first data transmission through a THz multiplexer](#).

Wondering what else Tektronix is up to? Check out the Tektronix [Bandwidth Banter blog](#) and stay up to

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About IEMN

The Institute of Electronics, Microelectronics and Nanotechnology (IEMN) is a major French laboratory, with ~500 people working on micro-nanoelectronics, MEMS, optics and acoustics. Medium-term joint programs with industrial partners or other national institutions and long-term research initiatives stimulate the resourcing of research projects. Thanks to the constant financial support of the Haut de France Regional Council combined with those of our trustees, IEMN can boast exceptional technical facilities: Micro and nano fabrication cleanroom (1600m², French Renatech network), very high frequency (DC-2.5 THz) RF and MEMS characterization platform, Near-field microscopy platform (AFM/STM), Telecom and EMC platforms. IEMN has also a key contribution on higher education, through doctoral and masters programs. IEMN scientific policy not only contributes to scientific research and its applications but also has the goal of bringing social, cultural and economic benefits for society through collaborations with industry.

<http://www.iemn.fr/>

About Tektronix

Headquartered in Beaverton, Oregon, Tektronix delivers innovative, precise and easy-to-operate test, measurement and monitoring solutions that solve problems, unlock insights and drive discovery. Tektronix has been at the forefront of the digital age for over 70 years. Join us on the journey of innovation at [TEK.COM](#).

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For further information: Amy Higgins, PR Manager, Tektronix, ahiggins@tektronix.com, 503.627.6497

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