Lightwave Logic and Polariton Technologies Announce Additional World-Record Performance for 250 GHz Optical Link

Breakthrough Peer-Reviewed Paper Results Presented at Prestigious 2022 European Conference on Optical Communications (ECOC)

ENGLEWOOD, Colo., and RUSCHLIKON, Switzerland, September 22 2022 -- Lightwave Logic, Inc. (NASDAQ: LWLG) and Polariton Technologies today announced the achievement of a world-record demonstration of a 250GHz super high bandwidth electro-optical-electrical (EOE) link through a collaboration with ETH Zurich. The link was demonstrated by ETH Zurich and uses Polariton's high -speed plasmonic modulators containing Lightwave's proprietary Perkanamine™ chromophores and ETH Zurich's high-speed graphene photodetectors.

The groundbreaking results were presented by Stefan Koepfli as part of a peer-reviewed post-deadline paper presented at the prestigious 2022 European Conference on Optical Communications (ECOC) in Basel, Switzerland on September 22, 2022. The post-deadline paper is titled ">500 GHz Bandwidth Graphene Photodetector Enabling Highest-Capacity Plasmonic-to-Plasmonic Links".

The link contained a plasmonic modulator using electro-optic polymer material as well as a novel metamaterial enhanced graphene photodetector featuring a 200 nm spectral window and a setup-limited bandwidth of 500 GHz. The EOE link achieved a world record and unprecedented 250 GHz 3dB bandwidth.

Dr. Michael Lebby, Chief Executive Officer of Lightwave Logic, said: "Next generation ultra-high-capacity interconnects require compact, ultra-fast modulators on the transmission end and ultra-fast photodetectors on the receiving end – this incredible result demonstrates that our electro-optic polymers will be instrumental not only for next-generation high-capacity interconnects, but for the more advanced and faster links that will be required for succeeding generations. This is an optical link that utilizes bandwidths in excess of 100GHz, and the plasmonic demonstration shows that hybrid technologies such as electro-optic polymers and graphene together form an important technology platform for volume scalability using large silicon foundries for mass commercialization. Through our collaboration with Polariton, we have utilized our polymers for a world-record performance for a plasmonic optical link.

"The plasmonic-to-plasmonic optical link opens flexible integration possibilities that we have only imagined before. This shows that plasmonic devices now complete an ultra-high frequency toolbox for a variety of applications in fiber communications – something we need to add to our technology roadmaps going forward," concluded Lebby.

Dr. Wolfgang Heni, Co-CTO at Polariton, added: "Polariton is dedicated to providing best-in-class devices with the highest-performance. Our goal is to make optical communications faster, the technology more scalable and with it, components and infrastructure more energy efficient. ETH Zurich's recent demonstration of a plasmonic link using both electro-optic polymers and graphene as active materials provides a peek into the future of super high-capacity optical networking. This showcases the opportunities of integrating advanced materials with established photonic platforms such as silicon photonics."

About Lightwave Logic, Inc.
Lightwave Logic, Inc. (NASDAQ: LWLG) is developing a platform leveraging its proprietary engineered electro-optic (EO) polymers to transmit data at higher speeds with less power. The Company's high-activity and high-stability organic polymers allow Lightwave Logic to create next-generation photonic EO devices, which convert data from electrical signals into optical signals, for applications in data communications and telecommunications markets. For more information, please visit the Company's website at lightwavelogic.com.

About Polariton Technologies Ltd.
Polariton Technologies Ltd. designs and manufactures plasmonic PICs, featuring the world's fastest and smallest electro-optic modulators, thus creating a solution that overcomes the interconnect bottleneck in optical communications. Follow us on LinkedIn @polariton-technologies and visit us at polariton.ch.

Safe Harbor Statement
The information posted in this release may contain forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995. You can identify these statements by use of the words "may," "will," "should," "plans," "explores," "expects," "anticipates," "continue," "estimate," "project," "intend," and similar expressions. Forward-looking statements involve risks and uncertainties that could cause actual results to differ materially from those projected or anticipated. These risks and uncertainties include, but are not limited to, lack of available funding; general economic and business conditions; competition from third parties; intellectual property rights of third parties; regulatory constraints; changes in technology and methods of marketing; delays in completing various engineering and manufacturing programs; changes in customer order patterns; changes in product mix; success in technological advances and delivering technological innovations; shortages in components; production delays due to performance quality issues with outsourced components; those events and factors described by us in Item 1.A "Risk Factors" in our most recent Form 10-K and Form 10-Q; other risks to which our Company is subject; other factors beyond the Company's control.

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