



Light Communications Alliance formed by Global Industry Leaders

- ***Alliance to lead the global adoption of technology offering unprecedented wireless communications***
- ***Light Communications industries is predicted to be worth billions***

25th June 2019 – Global leaders in the communications, lighting, infrastructure and device manufacturing industries announce that they have formed the Light Communications Alliance (LCA) to promote new wireless technologies enabling Light Communications (LC). They will establish and advocate the use of standards for this emerging industry.

Light Communications technologies complement and enhance 5G wireless communications and other radio frequency technologies such as Wi-Fi. By utilising its greater available spectrum, light can be used to deliver larger amounts of data at faster speeds and with greater security.

The LCA is an open, non-profit association of members who aim to promote Light Communications technology with a consistent, focused and concise approach. The LCA will highlight the benefits, use cases and timelines for Light Communications adoption. The organisation will align innovative leaders across the industries that light and communications touches, defining standards for education, communication, and interoperability.

The founding members of the LCA are Nokia, Emirates Integrated Telecommunications Company (du), LEDVANCE, Liberty Global, Lucibel, Orange, pureLiFi, LiFi Research & Development Centre, Velmenni, Zero.1, CEA Leti, and Institut Mines-Télécom.

Light Communication technologies include Light Fidelity (LiFi) and Optical Camera Communications (OCC) both of which have been attracting increased attention over recent years within several industries, such as smart cities and homes, industry 4.0 and manufacturing environments, as well as retail and tourism.

Global Market Insights predicts that the LiFi market will be worth \$75 billion by 2025, creating broad, far-reaching opportunities for the related industries to benefit from Visible Light Communications.

LiFi offers a fully networked, bi-directional mobile communication solution using light, which has the potential to deliver massive bandwidth and higher speeds for short-range wireless communications. It can be integrated easily alongside traditional wireless technology such as Wi-Fi and can enhance these networks with greater speeds and security. LiFi can be deployed in various environments, both professional and domestic, including smart offices, smart transport, industry 4.0 and in the smart gigabit connected home of the future.

Optical Camera Communications (OCC), has the potential to create value-added services by using the light for both broadcast communications and indoor positioning in environments such as office buildings, convention centres, and parking lots.



LC technologies can offer thousands of additional channels for secure high-speed communications. LC provides faster more reliable connections, as well as greater security because light can be contained, for example inside buildings.

The LCA is open to membership from all industries spanning both light and communications including chip manufacturers, OEMs, network operators, lighting manufacturers, and light communications innovators.

To learn more about the LCA, visit: www.LightCommunications.org

About the Founding Organisations

Nokia

We create the technology to connect the world. We develop and deliver the industry's only end-to-end portfolio of network equipment, software, services and licensing that is available globally. Our customers include communications service providers whose combined networks support 6.1 billion subscriptions, as well as enterprises in the private and public sector that use our network portfolio to increase productivity and enrich lives.

Through our research teams, including the world-renowned Nokia Bell Labs, we are leading the world to adopt end-to-end 5G networks that are faster, more secure and capable of revolutionizing lives, economies and societies. Nokia adheres to the highest ethical business standards as we create technology with social purpose, quality and integrity.

nokia.com

pureLiFi

pureLiFi is a Light Communications company that was founded by Prof. Harald Haas and Dr Mostafa Afgani in 2012 as a spin out of the University of Edinburgh. pureLiFi offers both LiFi systems and Gigabit LiFi light antennas to OEM's for integration. The company formed in response to the exponential growth in global demand for wireless bandwidth. pureLiFi has grown its international customer base with more than 130 deployments of LiFi in over 24 countries. The firm has also secured international partnerships with organisations such as Cisco, Wipro and O2 Telefonica.

For more information, please visit the website: <http://www.pureLiFi.com>



Zero.1

Zero.1 is a Hardware and Software provider specialises in Optical Camera Communication founded in 2016. Through its unique driver any LED can become compatible, a simple app downloadable on the IOS and Android Store will allow camera of mobiles devices to receive OCC signal, Zero.1 provides Cloud and services associated such as but not limited to, Indoor positioning system, localisation based services, geolocalised information's, crowd management and data analytics etc.

For more information, please visit the website: <https://www.zero1.zone>

LEDVANCE

With offices in more than 50 countries and business activities in more than 140 countries, LEDVANCE is one of the world's leading general lighting providers for professional users and end consumers. In North America, LEDVANCE LLC offers a wide range of SYLVANIA LED luminaires for various applications, intelligent lighting products for Smart Homes and Buildings, one of the largest LED lamps portfolios in the industry, and traditional light sources. The SYLVANIA brand leadership is a result of over 100 years of lighting experience and paves the way for future success. Further information can be found at www.sylvania.com

du

Emirates Integrated Telecommunications Company (du) is a vibrant and multiple award-winning telecommunications service provider in the United Arab Emirates serving 9 million individual customers with its mobile, fixedline, broadband internet, and Home services over its 4G LTE network. du also caters to over 100,000 UAE businesses with its vast range of ICT and managed services. For more information, please visit the website www.du.com

Velmenni

Velmenni has been working on LiFi Technology for the past 5 years. It has achieved multiple research and development milestone within Optical Wireless Communication including development of Optical Wireless Mesh Network. Today, Velmenni's main focus is on optimisation of speed, efficiency and seamless connectivity within the LiFi domain. Having held successful runs of LiFi technology in multiple locations, we're presently conducting pilot projects to utilise bidirectional Light Communication in diverse industrial conditions. The goal remains to integrate LiFi and Wi-Fi to create impeccable, efficient and productive networks.

For more information, please visit the website: www.velmenni.com



Lucibel

LUCIBEL is an innovative French group that designs and manufactures in France new generation LED lighting products and solutions. LUCIBEL is also a pioneer in the development and marketing of LiFi, a light internet access solution co-developed with its pureLiFi partner in Scotland.

For more information, please visit the website www.lucibel.io

LiFi Research & Development Centre (LiFi R&D Centre)

The LiFi R&D Centre translates internationally leading fundamental research to high technology readiness levels and conducts research in collaboration with, and on behalf of industry. It aims to accelerate society's adoption of LiFi and emerging wireless technology through engagement with major industrial partners, to fully harness the commercial and innovative potential of LiFi, and to help establish a major new LiFi industry. The LiFi R&D Centre includes 40 researchers including three academics.

For more information, please visit the website: <https://www.lifi-centre.com>

IMT

Institut Mines-Télécom is a public institution dedicated to higher education and research for innovation in the fields of engineering and digital technology. Always tuned in to the economic world, it combines high academic and scientific legitimacy with close business relations and a unique positioning in 3 major transformations of the 21st century: Digital Affairs, Energy and Ecology, and Industry. Its training and research for innovation are conducted in the Mines and Télécom Graduate Schools under the supervision of the Minister for Industry and Electronic Communications, in two subsidiaries and in institutions that are associate partners or under contract. Institut Mines-Télécom is a founding member of the Industry of the Future Alliance. It has two Carnot labels for the quality of its research partnerships. Every year, around one hundred startup companies leave its incubators.

For more information, please visit the website: <https://www.imt.fr>

About Liberty Global

Liberty Global (NASDAQ: LBTYA, LBTYB and LBTYK) is the world's largest international TV and broadband company, with operations in 10 European countries under the consumer brands Virgin Media, Unitymedia, Telenet and UPC. We invest in the infrastructure and digital platforms that empower our customers to make the most of the video, internet and communications revolution. Our substantial scale and commitment to innovation enable us to develop market-leading products delivered through next-generation networks that connect 21 million customers subscribing to 45 million TV, broadband internet and telephony services. We also serve 6 million mobile subscribers and offer Wi-Fi service through 12 million access points across our footprint.



In addition, Liberty Global owns 50% of VodafoneZiggo, a joint venture in the Netherlands with 4 million customers subscribing to 10 million fixed-line and 5 million mobile services, as well as significant investments in ITV, All3Media, ITI Neovision, Casa Systems, LionsGate, the Formula E racing series and several regional sports networks.

www.libertyglobal.com

About CEA Leti

Leti, a technology research institute at CEA Tech, pioneers micro and nanotechnologies, tailoring differentiating applicative solutions that ensure competitiveness in a wide range of markets. Leti developed a high-speed bi-directional LiFi solution successfully transferred to Luciom, where each LED lamp can connect up to 15 users to the Internet. Leti is also conducting cutting-edge research on LED sources combined with advanced wireless communication processing targeting very high throughput LiFi systems.

For more information, please visit the website: <http://www.leti-cea.com/cea-tech/leti/english>