



Press release

**“Haute couture” photonics:  
Almae technologies takes French excellence and innovation in nanoelectronics,  
led by III-V Lab, to an industrial scale.**

- ***Almae technologies is commercializing an innovative photonic technology developed by teams from Nokia Bell Labs, Thales and the CEA at III-V Lab to address telecom and data storage center demands for very high speed optical data transmission.***
- ***The startup has the industrial infrastructure to rapidly bring to market advanced components required to keep pace with the rapid growth in Internet data volumes.***

*Marcoussis, 29 June 2016 – With the regrouping of teams from III-V Lab (a company under the French “Economic Interest Group” scheme, consisting of researchers from Nokia Bell Labs, Thales and CEA/LETI), Almae technologies is taking over III-V Lab’s facilities at Marcoussis. Spun-off by III-V Lab in October 2015, Almae technologies will use the epitaxy reactors and electronic nanolithography equipment validated by III-V Lab to immediately ready for production III-V semiconductor wafers for the telecommunications market.*

With over 2000 m<sup>2</sup> of clean rooms, Almae technologies will have an annual full production capacity of several thousand semiconductor wafers incorporating new-generation laser components that support very high speed access over optical fiber.

Along with the acquisition of this critical equipment, Almae technologies will benefit from a technology transfer from III-V Lab, with operational support from the laboratory’s R&D teams in laser design, fabrication and characterization. This technology transfer will enable the start-up to rapidly achieve industrial scale and to develop products that meet the growing world market demand for advanced semiconductor lasers based on III-V materials.

*“We are delighted to have made this deal with Almae technologies, which brings to the market more than 10 years of research work on access photonics, strengthens our position as a technology leader in the field of laser applications for telecoms and demonstrates the value of our model of an innovative, open industrial laboratory,”* comments François LUC, President of III-V Lab.

***A growth market serving the needs of tomorrow’s telecoms***

The rapid growth worldwide in the number of Internet users, connected objects and data traffic have led to massive use of fiber optics and hence of semiconductor lasers, which are essential for encoding the signal onto an optical carrier for transmission through the fiber.

The market has a strong growth outlook, in particular in Asia and the United States. The optical communications transmitter segment has been assessed at 4 billion dollars and is running at an annual growth rate of 12%.



### ***A technological breakthrough in photonic integration moves out of the laboratory***

Almae technologies designs and produces Indium Phosphide (InP) wafers used to implement photonic circuits integrating semiconductor lasers, made possible by licensing a portfolio of patents from Nokia. This involves a technology for growing materials with atomic-scale control developed in III-V Lab: this "buried stripe" laser technology is at the leading edge of global innovation in photonics. It consists of covering the semiconductor strip constituting the laser with an electrical insulator material with sub-micron precision, enabling good thermal exchange and optimum optical guidance of the beam. This technique enhances the implementation, stability and performance of integrated lasers: a range of products operating at up to 25 Gbit/s is in the process of development.

*"We are very proud that the photonic technologies developed by Nokia Bell Labs and III-V Lab will now be applied by Almae technologies in the creation of semiconductor wafers for telecommunications industry. Many of these optical technologies are at the core of next generation networks, including 5G. They will provide the greater speed and processing required to meet the needs of a fully mobile and connected society while consuming less power. Almae technologies will also provide a reliable industrial supply chain for our innovations going forward"* says Jean-Luc Beylat, President of Nokia Bell Labs France.

*"We welcome the agreement with III-V Lab: it will enable Almae technologies to develop its epitaxial wafer manufacturing business on an industrial scale, along with high added value services in collaboration with InPACT, a III-V Lab partner for 10 years, while positioning Almae as a major player in the field of photonic integrated circuits. This new R&D and industrial production activity will contribute to the dynamism of the ecosystem of the Saclay plateau technology region by creating value and highly-skilled jobs in the growing sector of photonics applied to telecommunications,"* says Jean-Louis GENTNER, founder and CEO of Almae technologies.

### **About Almae technologies**

Almae technologies was created in late 2015 at the initiative of one of the directors of III-V Lab and two managers of InPACT, and in February 2016 received a capital input from one of the major players in the photonic components industry. Almae has acquired a set of production equipment belonging to III-V Lab and benefits from a technology transfer from the shareholders of III-V Lab to enable it to become operational very quickly. Almae's ambitious business plan and the new highly-skilled jobs which it will create will add greatly to the dynamic of the Saclay plateau in the field of photonics.

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### **About III-V Lab**

III-V Lab is an Economic Interest Group ("Groupement d'Intérêt Economique") between the CEA (the French Alternative Energies and Atomic Energy Commission), Thales and Nokia, dedicated to industrial research and development of optoelectronic and microelectronic components based on III-V semiconductors, and their integration with silicon circuits. Created in 2004, III-V Lab brings together 120 researchers in the Paris region and actively cooperates with CEA-LETI's laboratories at Grenoble. III-V Lab has prototyping and production start-up resources to foster the emergence of high added-value component technologies which are then transferred to the industrial entities of the parent companies or their partners. [www.3-5lab.fr](http://www.3-5lab.fr)

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