

PROJECT

## HiLiCo

### High Luminescence In Cockpit

**Funding:** European (Horizon 2020)

**Duration:** Jun 2017 - May 2020

**Status:** Complete

**Total project cost:** €4,091,584

**EU contribution:** €4,091,584



**Call for proposal:** H2020-CS2-CFP04-2016-02

[CORDIS RCN : 211039](#)

#### Objectives:

Although the market demand for displays bright enough to allow the diffusion of readable information against a very bright landscape is important, in particular in the avionics application, existing technologies still do not allow the desired brightness combined with very low power consumption and very compact volumes.

In this context, the HiLiCo project aims at developing a new generation of monochrome and full-color emissive GaN micro-displays with 1920 x 1200 pixel resolution (WUXGA), 8- $\mu\text{m}$  pixel pitch, very high brightness (over 1Mcd/cm<sup>2</sup>) and good form factor capabilities that will enable the design of ground breaking compact see-through systems for next generation Avionics applications.

To achieve this aim, HiLiCo will address the following challenges:

1. development of high-quality GaN based LED epilayers designed to fulfill targeted demonstrator performances;
2. design and fabrication of an active matrix in advanced Complementary metal oxide semiconductor (CMOS) technology to control each individual pixel;
3. coupling of the LED structure and the CMOS, building a monolithic structure on which LED arrays will be fabricated with high precision, thus making monochrome, active-matrix, high-resolution GaN microdisplays;
4. addition of colour converters (quantum dots and 2D Multi-Quantum Wells layers) on such blue emitting devices, for fabricating bi-color and full-color display demonstrators;
5. design and manufacture of the electronics followed by the test and evaluation of the complete micro display device. First demonstrators will be qualified for future commercialisation.

The technology developed will contribute to the increase of European competitiveness, through the rapid and important deployment of innovative products on the microdisplay market, as well as Head-Up Displays, Head-mounted displays and smart Eyewears.

The consortium gathers 1 RTO, 1 large company and 2 SMEs. They will mobilise a grant of 4 091 583 € with an effort of 283 PM.

#### Parent Programmes:

[H2020-EU.3.4. - Horizon 2020: Smart, Green and Integrated Transport](#)

**Institute type:** Public institution

**Institute name:** European Commission

**Funding type:** Public (EU)

#### Lead Organisation:

**Commissariat A L Energie Atomique Et Aux Energies Alternatives**

**Address:**

RUE LEBLANC 25  
75015 PARIS 15  
France

**Organisation Website:**

<http://www.cea.fr>

**EU Contribution:** €2,928,218

**Partner Organisations:**

**Novagan Sarl**

**Address:**

CHEMIN DE MORNEUX 5 A  
1003 LAUSANNE  
Switzerland

**EU Contribution:** €412,979

**Nexdot**

**Address:**

102 AVENUE GASTON ROUSSEL BIOTECH-BATIMENT PASTEUR  
93230 ROMAINVILLE  
France

**EU Contribution:** €450,000

**Microoled Sarl**

**Address:**

7 PARVIS LOUIS NEEL BP 50 BHT BATIMENT 52  
38040 GRENOBLE CEDEX 09  
France

**Organisation Website:**

<http://www.microoled.net>

**EU Contribution:** €300,388

**Technologies:**

Cabin and cockpit design  
Cockpit-based technologies for improved pilot workflow

**Development phase:** Research/Invention

**STRIA Roadmaps:** Vehicle design and manufacturing

**Transport mode:** Air transport

**Transport sectors:** Passenger transport, Freight transport

**Transport policies:** Other specified

**Geo-spatial type:** Other