UVCSAN®

AIR PURIFICATION SYSTEM

Class 1 Medical Device

LED-UVC technology

Safe and efficient in the presence of people

Smart silent mode

Ecofriendly

Pollutant-free

n° 2098219

VDGLab s.r.l. - Via Balicco, 67 - 23900 Lecco (LC) - Italia

rev_211102

UVCSAN® - AIR PURIFICATION SYSTEM

PURPOSE

Current COVID-19 pandemic has put considerable attention on air quality and purity, due to its key role in virus and bacteria transmission.
Coronavirus air transmission led to lockdown and activities closure (schools offices, cinemas, public transport), with dramatic social and economic consequences.
Bigger droplets (diameter>5 micron) fall down after small time of suspension in the air. Viral particles in smaller droplets (diameter<5 micron) can fluctuate in aerosol phase and infect a healthy person if inhaled.
This event is more likely to happen if the room is closed and poorly ventilated.
For this reason, closed spaces such as offices, pubs, cinemas, theatres, supermarkets, shops, schools, public transportation, etc. are considered more dangerous for getting in contact with SARS CoV-2.
According to recent scientific studies, being in a closed room with an infected person without wearing a mask or keeping enough distance, increases the risk of contamination.
Time of exposition is a key point of SARS-CoV-2 transmission. For avoiding infection, systems for purifying air quickly and efficaciously are required.
Thanks to our solid experience in LED technology and electronical design, we accepted the bet for realising an innovative system: **UVCSAN®**

TARGET

We want to guarantee healthy and safe air for workers, students and all activities which take place in closed room efficaciously, quickly and respectful for the environment.

POSSIBLE SOLUTION

Several ways for maintaining good quality of air are available:

Passive mode: HEPA filter, FFP2/FFP3 masks, all combined with air exchange in confined indoor spaces.

Active mode: use of technologic systems that inactivate viruses.

Main technologies used nowadays are:

- **Ozone O3 (toxic gas requiring absence of people during the sanitation phase)**
- **Germicidal lamps con UVC rays emission (200nm-300nm)**
  - Direct emission on surfaces (sanitation of the irradiated object effectively in few centimeters).
  - Direct emission in environment (which requires absence of people during the sanitation phase) this has a good efficiency only near the lamp).
  - Confined emission in a purifier (which permits the presence of people).

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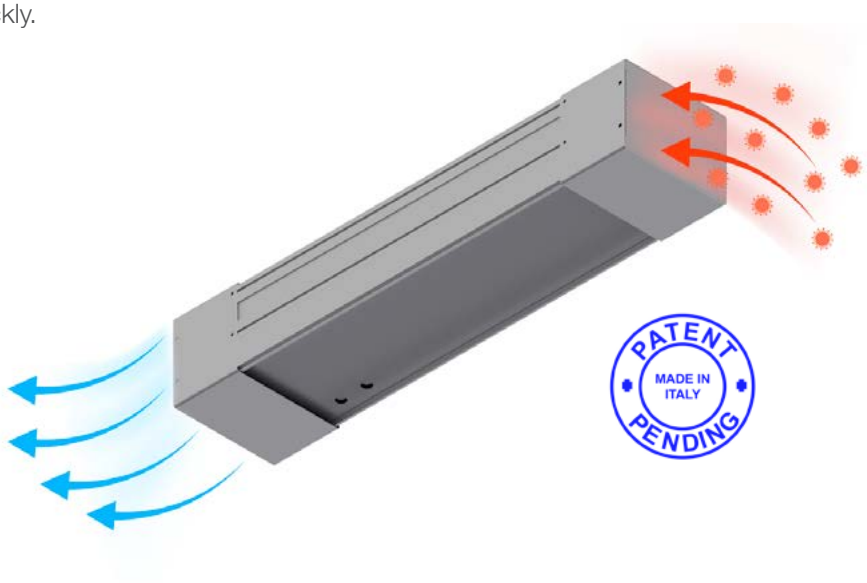
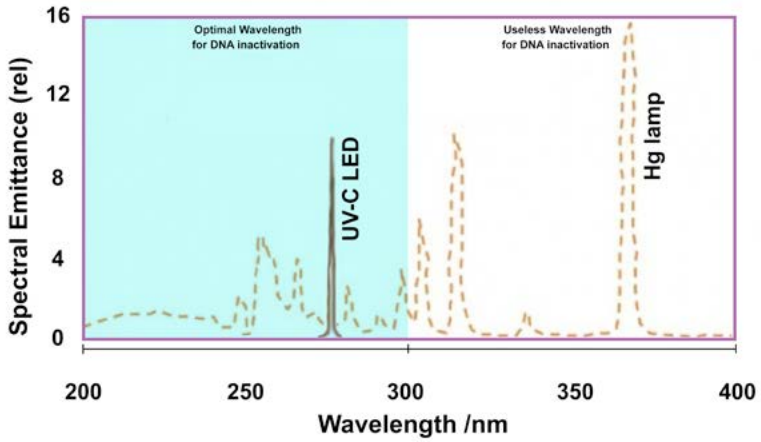
TECHNOLOGY

UVCSAN® is a **VDGLab** designed and patented system. It is a closed and totally safe system based on UVC-LED smart technology. It is eco-friendly and safer than mercury-based technology.
LED correct selection with precise wavelength matched with powerful brushless fan suction, allow **UVCSAN®** to sanitize spaces safely and quickly.



LED short emitting wavelength is able to destroy bacteria and viruses. This technology is eco-friendly and more advantageous compared to mercury-based lamp:



- **Energetic efficiency** because of focused wavelength on virus destruction
- **Without mercury** in compliance with Minimata Convention on environment safeguard
- **Instantaneous start and stop**
- **SMART management**
- **Optional: Integrated white light**

Scientific studies show 99,99% efficacy of UVC LED radiation on plane surfaces.

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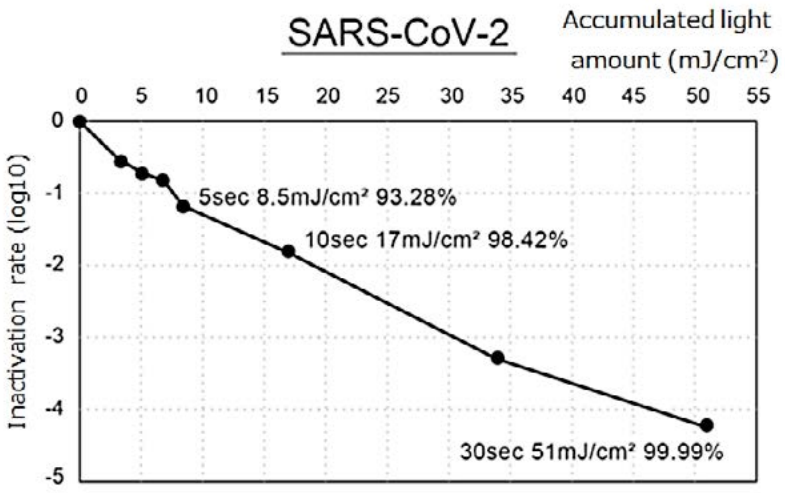

(SARS-CoV-2/Hu/DP/Kng/19-020, Genbank: LC528232) was provided by Kanagawa Prefectural Institute of Public Health.)

Optimal internal air passage design permits maximum UVC radiation intensity treatment, in order to reduce necessary time for disinfection. Inside **UVCSAN®,** viruses' inactivation is really quick.

Air purification starts from first working cycles, reducing viral load in the air.
International rules set a minimum limit of complete purification when the entire volume of air is changed 6-10 times.

Space	Volume	Suction time for a complete volume with one UVCSAN®	Complete sanitation time (*)
Lift (4 people)	c.a. 5m3	3 min	18-24 min
Ambulance	c.a. 10m3	6 min	36-48 min
Minivan	c.a. 20m3	12 min	72-96 min
Cableway	c.a. 30m3	20 min	120-160 min
Waiting room	c.a. 50m3	30 min	180-240 min
School classroom (**)(#)	c.a. 150m3	90 min	540-720 min
Notes:	* 6-8 complete change of entire volume ** Classroom for 25 students, h =3m (1,96m2/student=49 m2) #for big size space. If more UVCSAN are required, time of sanitation decreases proportionally		

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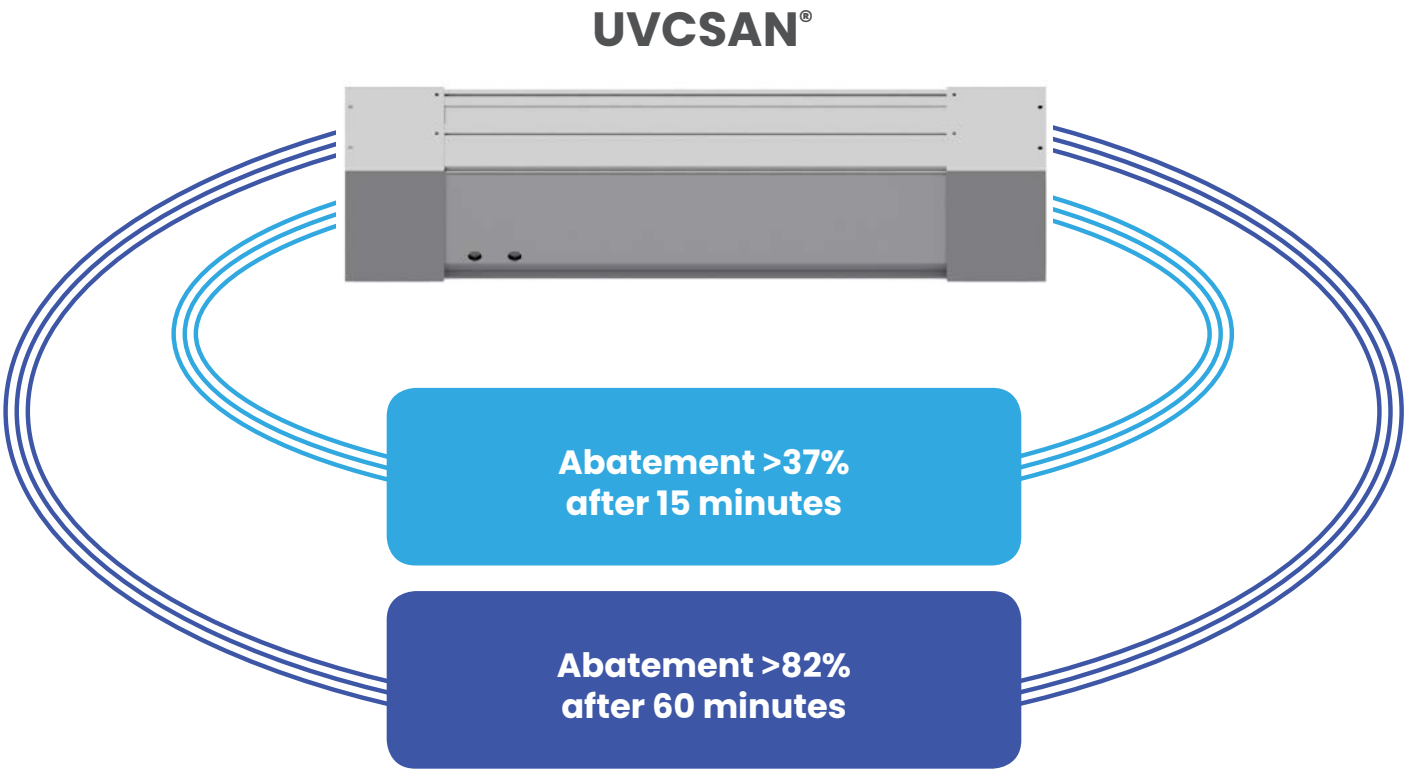
A volume of 100 m3 (room of 40m2) could be purified in 10 hours. Big volume space could be treated with more **UVCSAN®** systems.

Thanks to SMART control, **UVCSAN®** operates in absence of people for the entire cycle of sanitation base on room size. In presence of people, **UVCSAN®** switches automatically on silent mode, reducing fan speed and noise under rules limits, keeping UVC radiation operational.

Indipendent European laboratory carried out tests on **UVCSAN®** and results show that the device is able to decrease the 80% of bacterical and micetical load in less than 1 hour (in a room of 10 m3).



UVCSAN® efficacy is certified by an indipendent laboratory in **compliance with ACCREDIA.**

UVCSAN® has been tested in a real environment in order to evaluate its microbial risk abatement effectiveness. Tests took place inside a closed ambulance with total volume of 10m3.

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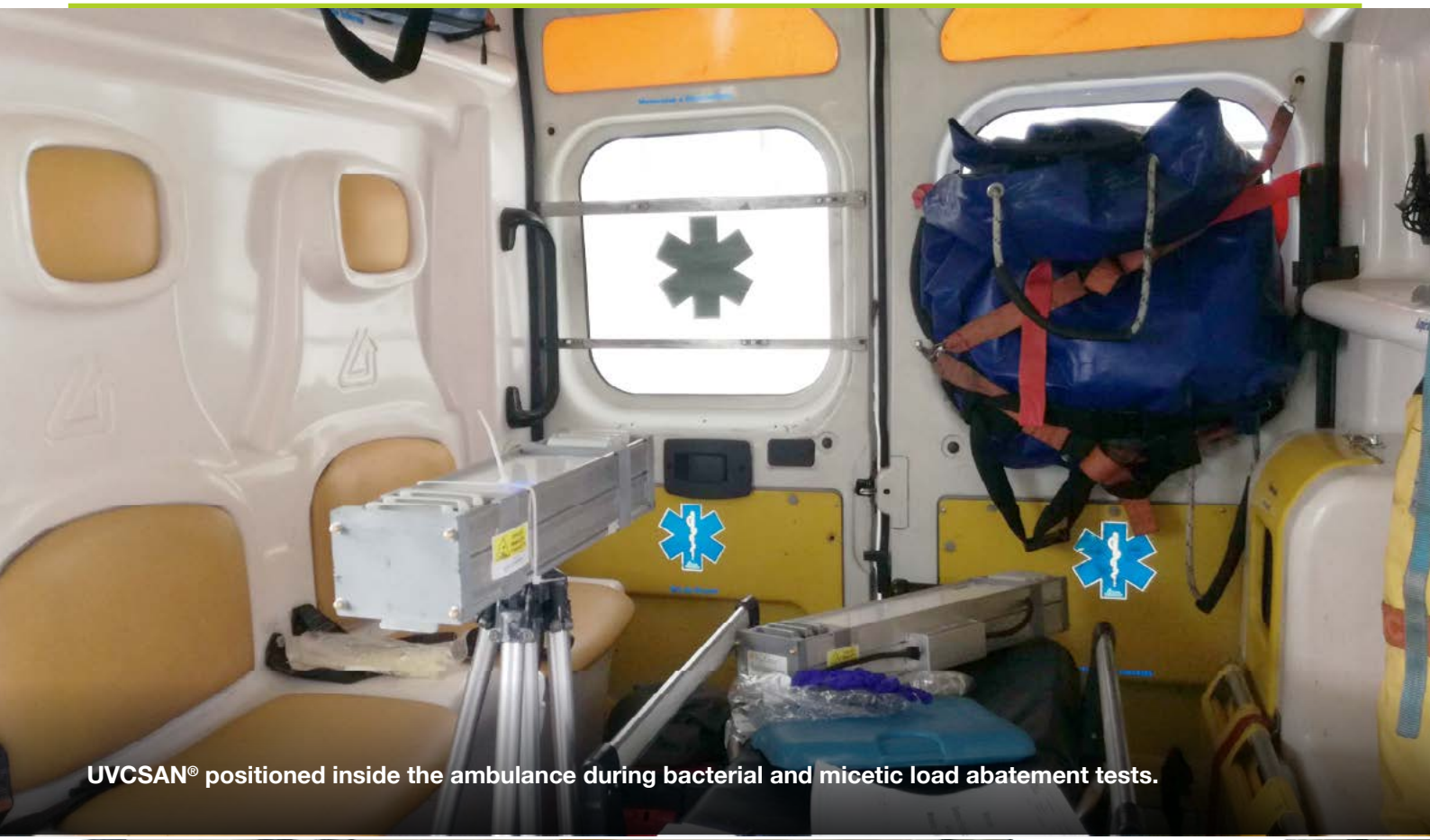
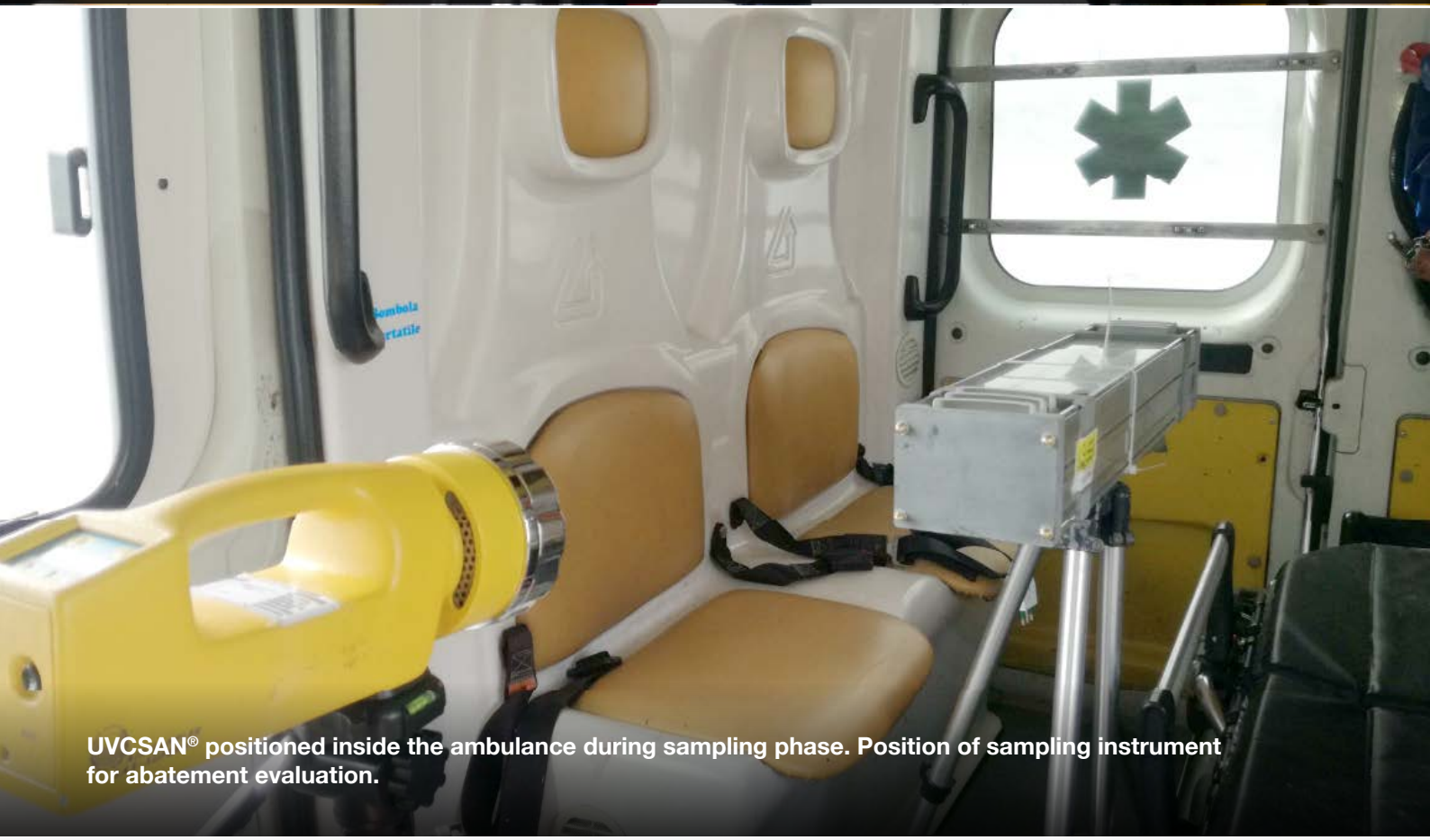


UVCSAN® positioned inside the ambulance during bacterial and micetic load abatement tests.



UVCSAN® positioned inside the ambulance during sampling phase. Position of sampling instrument for abatement evaluation.

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Doors and windows were kept closed during the entire duration of both sampling phase and purification phase.
Before and after purification cycle, a microbial pollution monitoring has been performed, in compliance with **NATIONAL HEALTH PROTECTION INSTITUTE** guidelines.
Test results show that **UVCSAN®** is able to reduce microbial load successfully.
For more information about tests, please contact info@vdglab.com

KEY POINTS

1. Virus, bacteria, microorganisms distruction, scientifically tested.

2. Complete air purification thanks to powerfull aspiration system.

3. High reliability

4. Safe functioning with people.

5. Silent mode available.

6. MADE IN ITALY

USER COMMUNICATION

COMB APP available for **IOS and ANDROID systems** permits a direct communication between **UVCSAN®** and users through **BLUETOOTH.** It is possible to control operation status and to regulate functioning parameters real time, such as room size, pause interval, etc… Room values (CO2, ethanol, etc…) could be checked thanks to optional sensors.

APPLY TO

UVCSAN® air purifier is particularly suitable for treating air of medium-small size rooms such as:

- Lifts
- Public transports
- Ambulances
- Cableways, funiculars
- Hotel rooms, meeting rooms, schools classrooms and many more……

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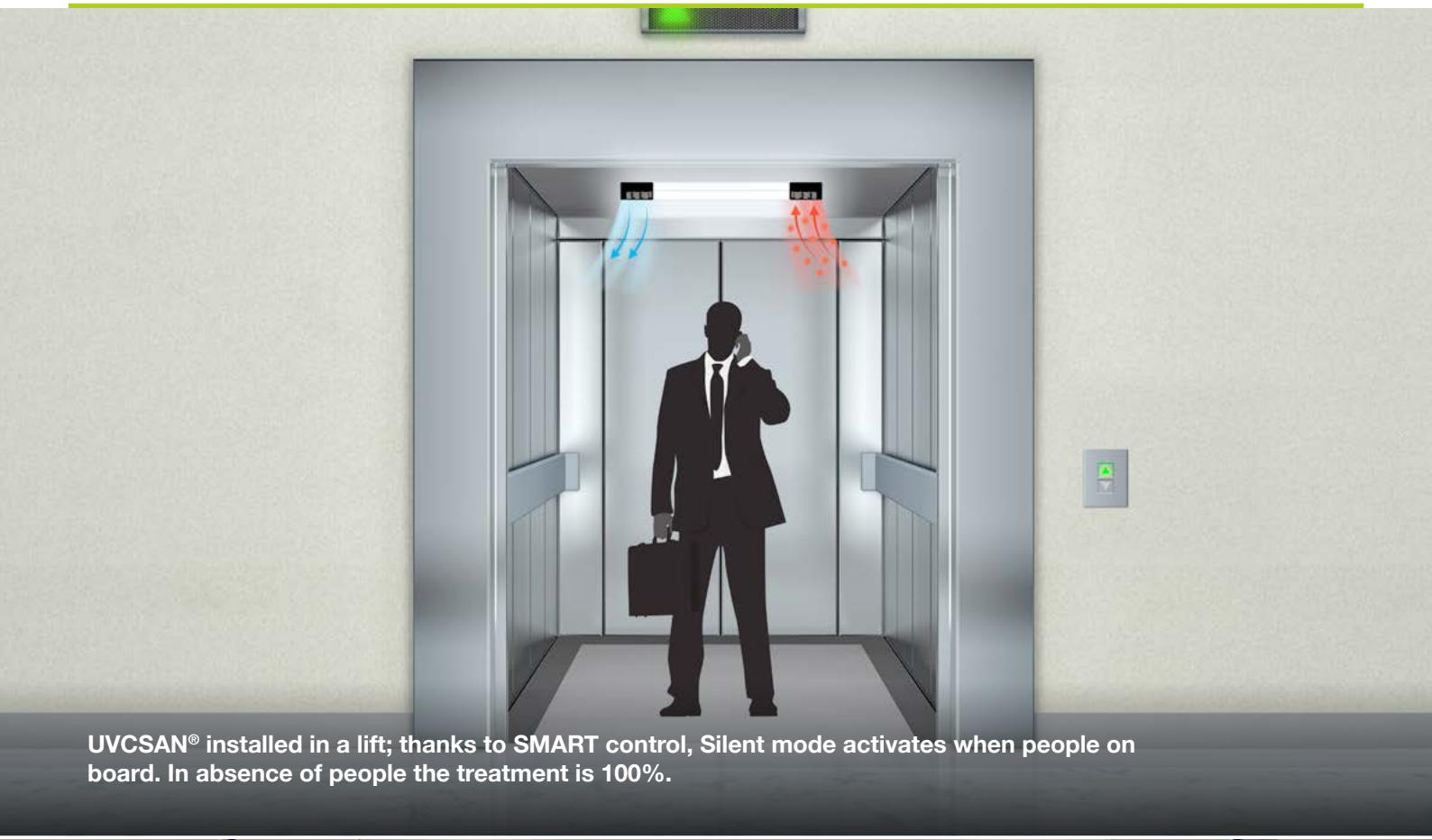
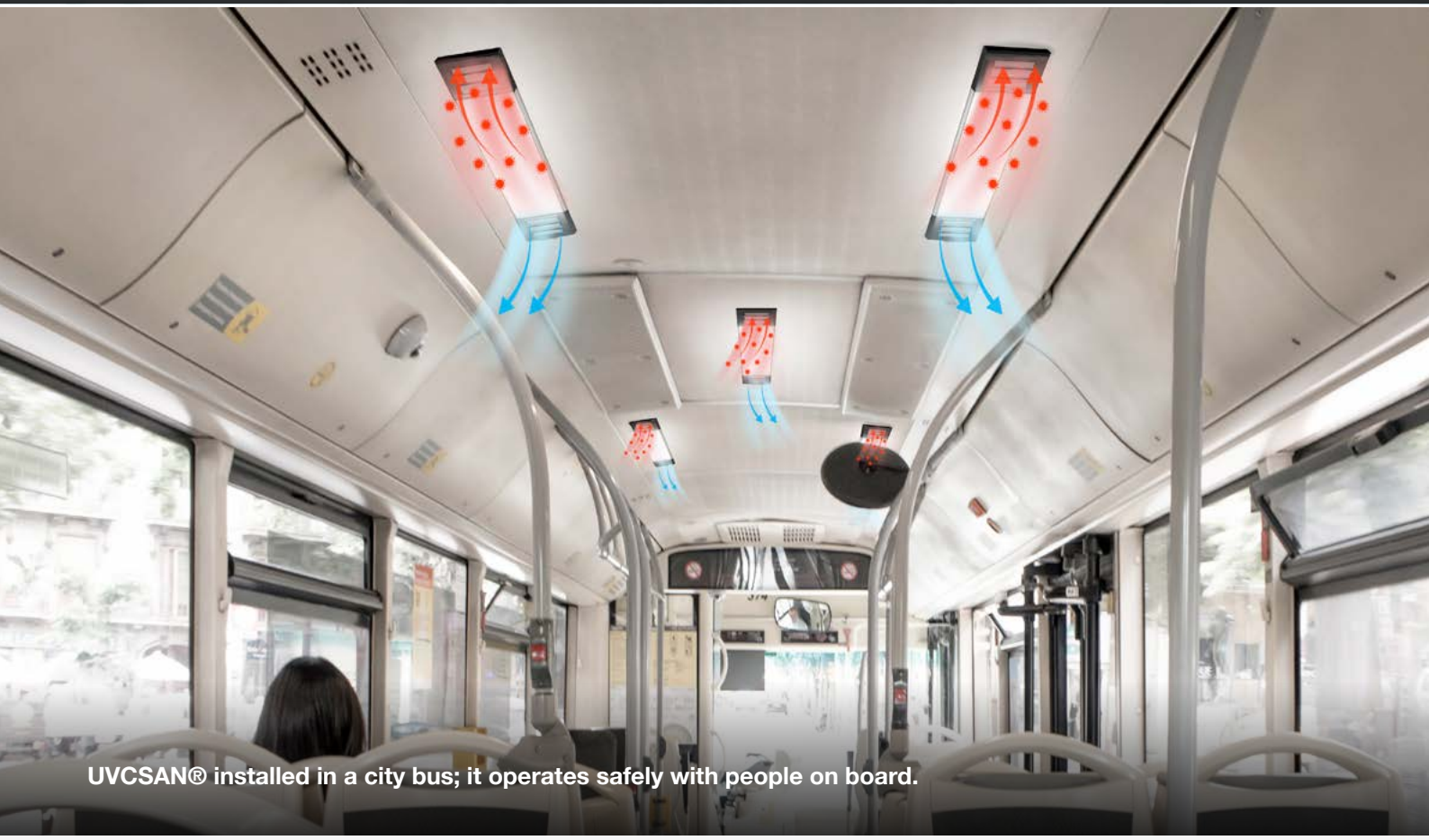


UVCSAN® installed in a lift; thanks to SMART control, Silent mode activates when people on board. In absence of people the treatment is 100%.



UVCSAN® installed in a city bus; it operates safely with people on board.

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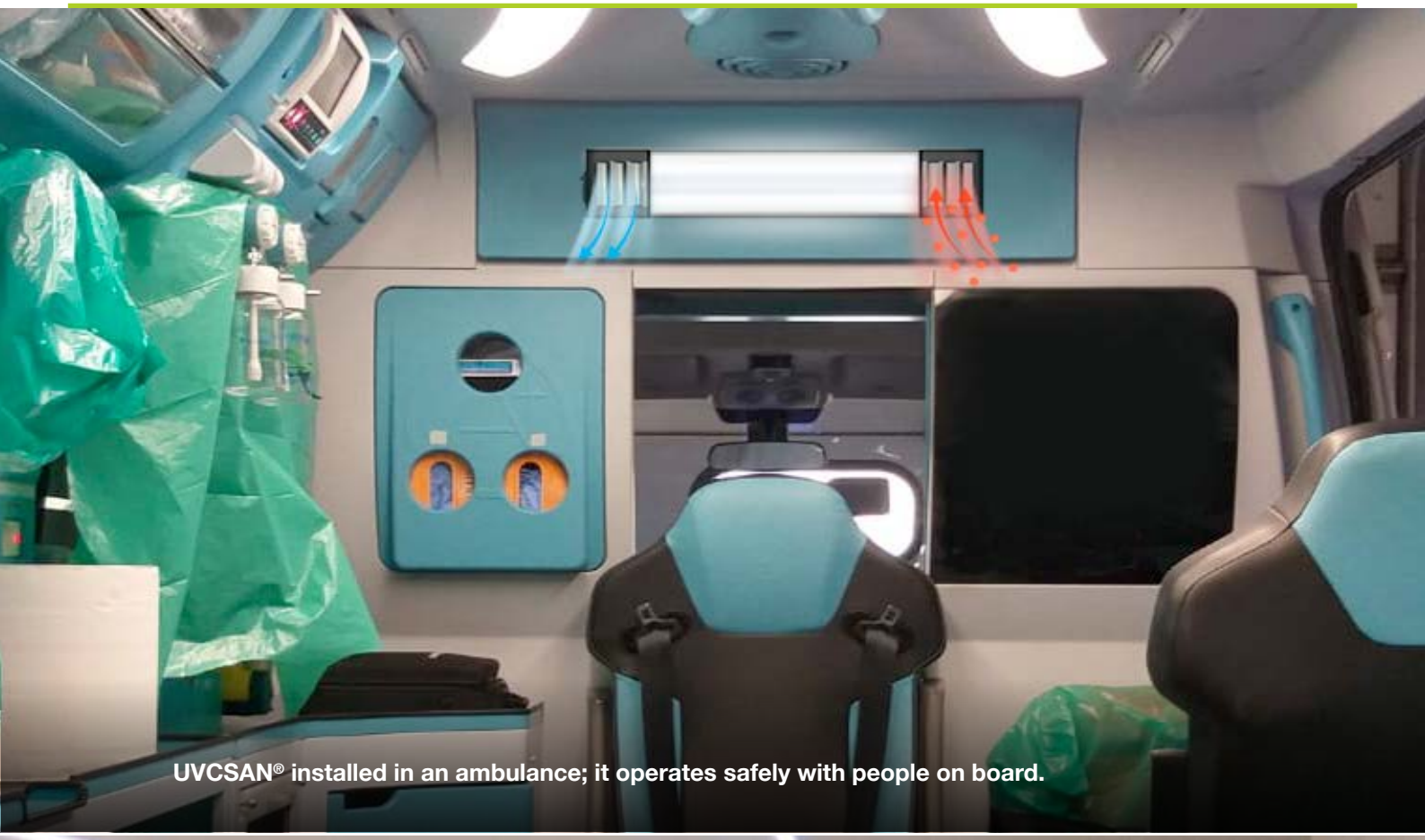
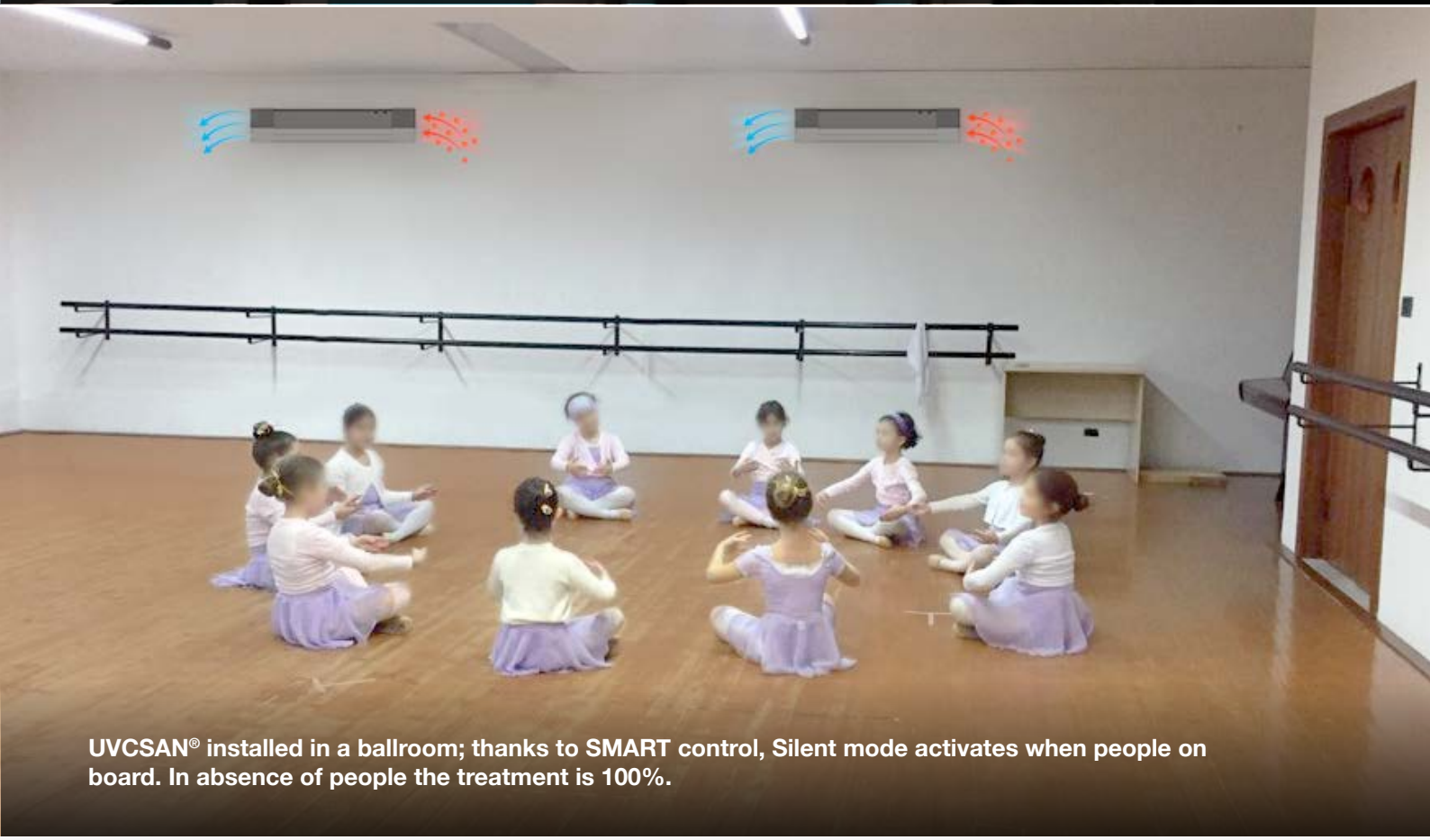


UVCSAN® installed in an ambulance; it operates safely with people on board.



UVCSAN® installed in a ballroom; thanks to SMART control, Silent mode activates when people on board. In absence of people the treatment is 100%.

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UVCSAN® is suitable for sanitizing cableways and funicolars and it operates safely with people on board.

UVCSAN® is the right choice for sanitizing medium and small size spaces. Thanks to its technology and ad-hoc design, it is 100% safe and could operate with presence of people.

UVCSAN® Air Purifier is compact and easy to handle, thus being easy to install in existing and under construction areas.

VDGLab s.r.l., thanks to its wide experience in Research & Development and Design Engineering, is able to provide custom **UVCSAN®** solutions, in case of specific client requests.

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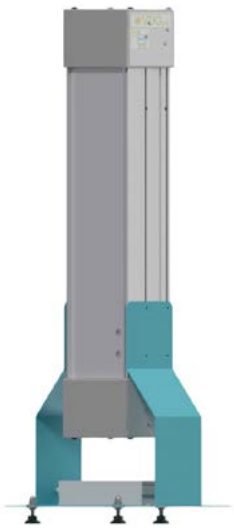
UVCSAN®- RELATED PRODUCTS

UVCSAN® TOWER

UVCSAN® air purification system is suitable for different type of installation and it can be integrated into existing structures or it can be used on plane surfaces (such as desks, tables, shelves) thanks to its ad-hoc support. It is particularly suitable for temporary spaces.

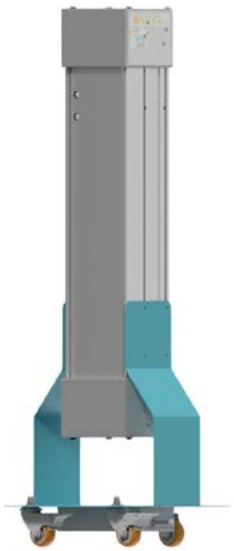
FIXED

Long-lasting non-slip supports carefully selected.



PORTABLE

Rubber coated wheels suitable for every kind of flooring.

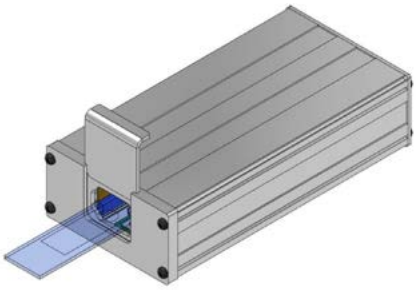


UV-C PULSE GENERATOR

VDG-UVC System is an innovative product suitable for fulfilling COVID-19-time abatement test through **UV-C** radiation. **VDG-UVC System** is made up of electronic control device and irradiation chamber, compatible with Petri rectangular dishes.

ELECTRONICAL CONTROL DEVICE

It is possible to set pulses with variable duration from 50 ms to 9999.9 s.



IRRADIATION CHAMBER

The irradiation chamber confines **UV-C** radiation, ensuring complete safety during testing phase.

UV-C pulse generator is particularly suitable for medical and research laboratories, which carry out test on pathogens, in order to define correct values for the destruction of viruses, bacteria, mildew, etc…

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UVCSAN®- ABOUT US

VDGLAB S.R.L.

VDGLab is a young and dynamic start-up, thanks to the passion and dedication of our founder (Vincenzo Di Giovine) in turning solid business ideas into innovative products.

Our **MISSION** is to design and realize the ideas of our customers thanks to the know-how of our Engineers, expert in the lighting, electrical, electronic and optical fields. Our aim is to achieve breakthrough solutions that respect the environment through the application of technologies and more efficient materials and following the principles of lean thinking, design-to cost, co-design and design tools. Design, passion and high quality are our strong key rules that allow itself to satisfy the increasing customisation required by the market and to create **MADE IN ITALY** products, manufactured and assembled in our workshop in Lecco (Italy). After the production process, the products designed by **VDGLab** have to undergo rigorous testing in our laboratory equipped with advanced tools.

Discover the products of SANITATION line

SPIS is a compact system for producing Sodium Hypo-chlorite, well known as hygienic solution.

VDGLab is active partner of I-LABEL project

VDGLab won HUB Research and Innovation contest for designing smart labels. I-Labels are able to change shown message reacting to external stimulus.

VDGLab developed an innoavtive system for generating smart UV pulses. UV pulses automatically adjust duration and intensity on print dimensione, so decreasing energetic consumption.

Read QR code for discove-ring more about **I-LABEL**

REALIZZATO CON IL SOSTEGNO DI

UNIONE EUROPEA
fondo europeo di sviluppo regionale

Regione Lombardia

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VDGLab s.r.l. - Via Balicco, 67 - 23900 Lecco (LC) - Italia

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