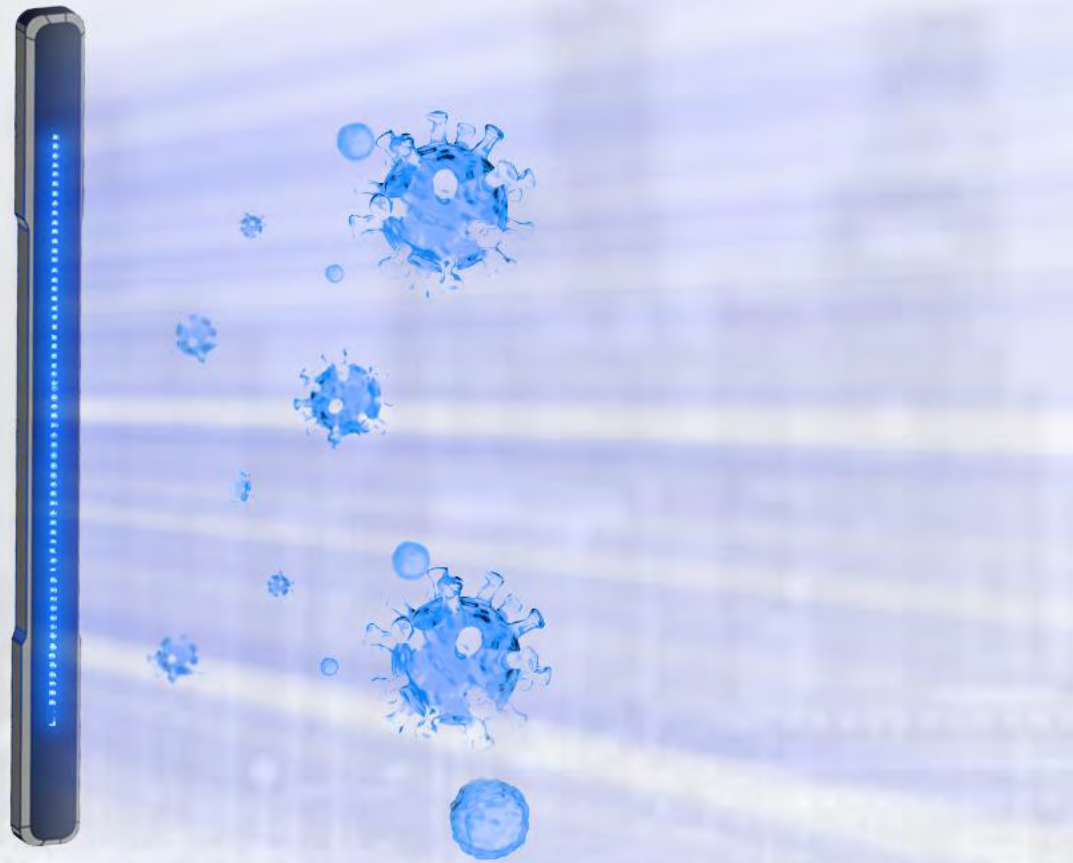
AirGuard

UV-C LED Air Disinfection Modules



OTSAW

Welcome to the world of Robotics and Artificial Intelligence with OTSAW.

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Version AG 2022-09

OTSAW

AirGuard

OTSAW's leading UV-C LED technology is now available as an air disinfection solution: AirGuard.

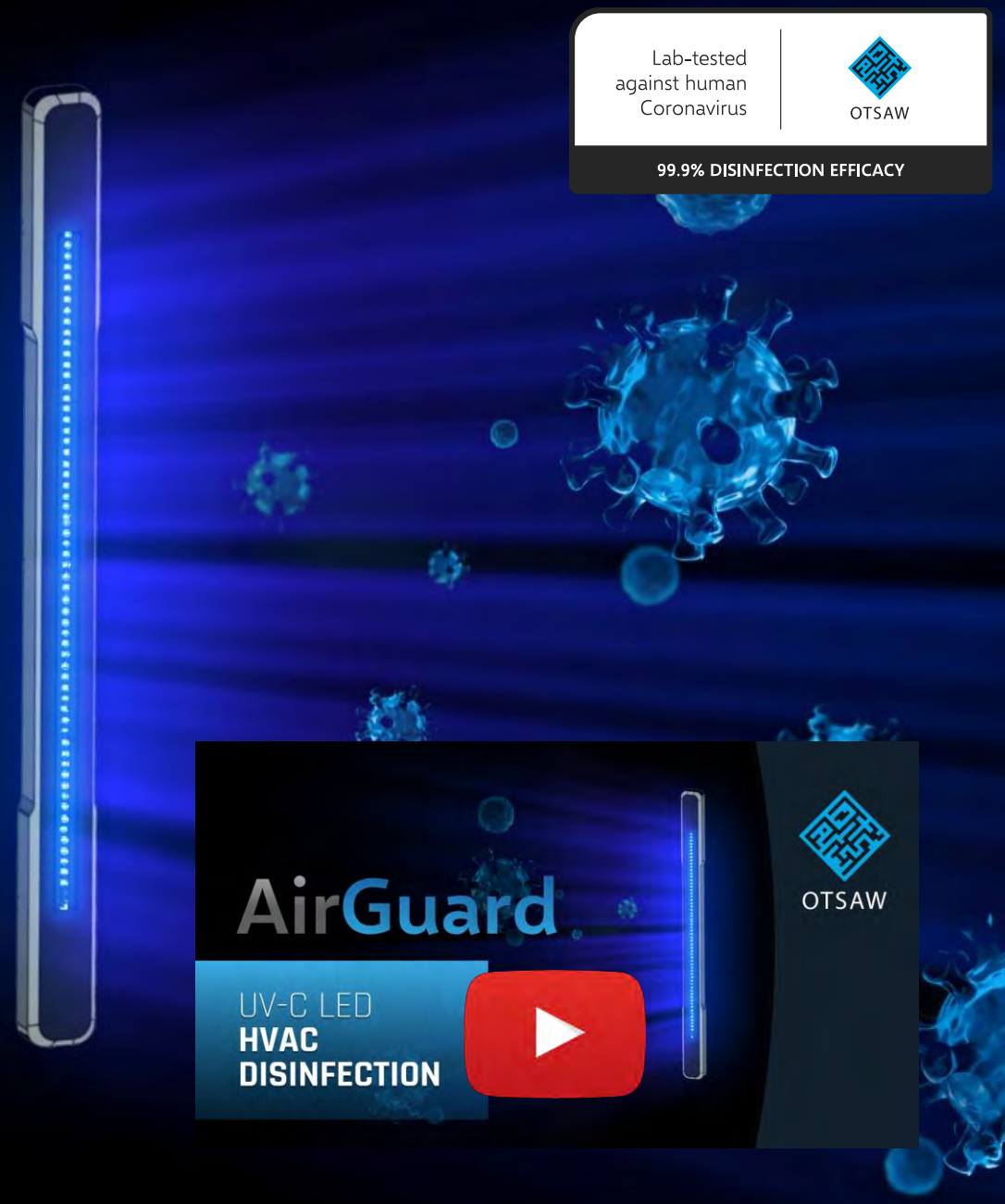
AirGuard is the answer for disinfecting the indoor air we breathe, by installation within air conditioning and ventilation systems.

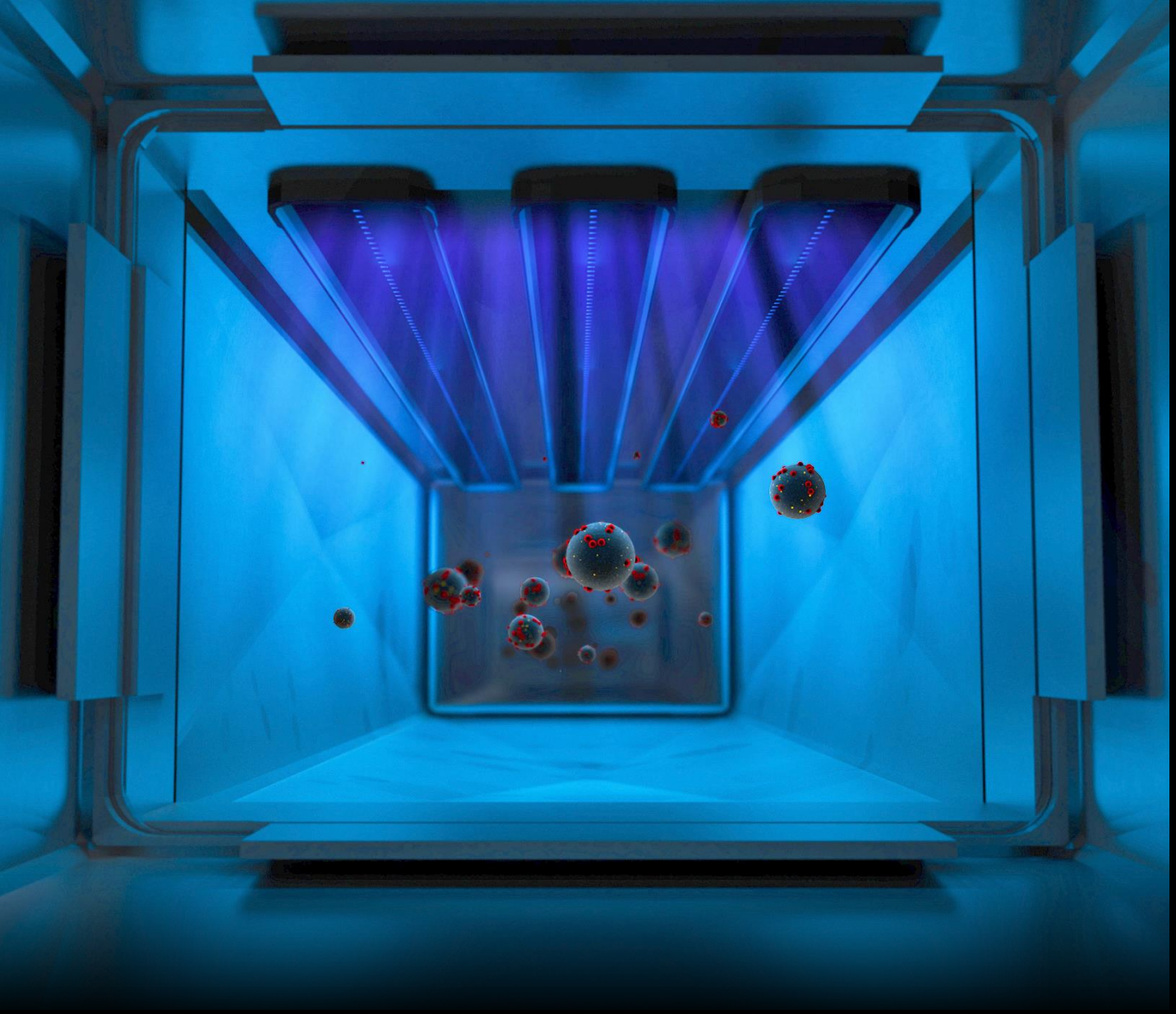
Where others may employ mercury-based UV lamps, OTSAW's UV-C LEDs are not only more energy and environmentally friendly, they are the only certified and lab-tested solution to be proven effective in disinfecting against coronavirus.

Disinfect airborne viruses and bacteria

Retrofit into existing HVAC systems

Remote control operation





AirGuard

Product Spec

Applications

- UV-C Air modules are integrated within air conditioning ducts
- Small and easy to install in most ducts
- Coverage can be easily configured as per requirements
- Automatic operation by schedule or remote control

Minimal Modification

- Minimal modification required to retrofit the UVC LED fittings in existing HVAC systems
- Additional sensors can monitor for temperature, airflow, and overall air quality

Background Disinfection

- UVC LED fittings perform disinfection in the background, circulating clean air to the environment.

Don’t fight Poison with Poison

OTSAW prides itself on responsible innovation. We believe that the solutions we develop today should not leave a problem for the generations of tomorrow.

Conventional UV disinfection methods utilize mercury-based lamps – which generate harmful waste to humans and the environment.

At OTSAW our UV-C technology is developed with LEDs, which are more energy efficient, less wasteful, and contain no hazardous material.

UN environment programme

MINAMATA CONVENTION ON MERCURY

About Mercury and the Minamata Convention:

The Minamata Convention on Mercury is a global treaty to protect human health and the environment from the adverse effects of mercury.

The Minamata Convention entered into force on 16 August 2017, on the 90th day after the date of deposit of the 50th instrument of ratification, acceptance, approval or accession.

UV-C LED Test Results

OTSAW's U-VC modules have been lab tested to prove 99.9% disinfection efficacy within a 2.5 meter range.

TEST REPORT: 7191238316-CHM20-01-RC
09 JUN 2020

PSB Singapore

RESULTS

Product : UV-C Module from OTSAW O-RX UV-C LED Disinfection Robot
Test Microorganism : *Escherichia coli* (ATCC 8739)

Test Condition	Distance	Timing	Mean Untreated Count (CFU)	Mean Treated Count (CFU)	Reduction Percentage (%)
1	2.5 meter	10 minutes	1 000 000	Less than 10	More than 99.999
2	2.5 meter	20 minutes		Less than 10	More than 99.999
3	2.5 meter	30 minutes		Less than 10	More than 99.999
4	2.0 meter	10 minutes		Less than 10	More than 99.999

Remarks :

The above test results relate to the sample as received.

MS AW HWEE YING
HIGHER TECHNICAL EXECUTIVE

MR RANDY CHIN KOK FEI
PRODUCT MANAGER
MICROBIOLOGY
CHEMICAL & MATERIALS

OTSAW

UV-C LEDs vs UV Mercury Lamps

Ultraviolet germicidal irradiation (UVGI) is a cost- effective and practical method of inactivating viruses and bacteria.

Existing high-power UVGI systems use UV lamps for large-scale disinfection.

UV-C LED holds many advantages over conventional UV lamps in efficiency, efficacy, safety and in environmental concerns.

Characteristic	UV-C LEDs	UV Lamps
Safe against human skin	Within safe UV-C range	Range overlaps UV-A, UV-B & UV-C
Power consumption	Approx 300W	Approx 1000W
Size	Compact	Bulky
Time to reach full brightness	Instantaneous	1 - 15 minutes warm-up
Irradiance	8.6 uW/cm^2	3 uW/cm^2
Angle	Directional	Omnidirectional
Lifespan	3 years	1 year
Operating hours	5 hours	2.5 hours
Time needed for disinfection	Disinfects 240m^2 in 1 hour	Disinfects 180m^2 in 1 hour
Mercury content	None (Environmentally friendly)	Contains mercury (Environmentally hazardous)
Voltage operation	Low voltage operation	High voltage operation
Maintenance	Maintenance-free	Requires bulb replacement and routine cleaning
Ozone production	Zero. Safe for humans	Produces ozone, hazardous to respiratory tract
Durability	Durable and solid construction	Fragile and dangerous

OTSAW

Responsible **Innovations**

T-RANS CAR

Automated Guided Vehicle for Material Transport

T-REX

Multi-use Portable UV-C LED Disinfection

O-RX

Autonomous UV-C LED Disinfection

Camello

Autonomous Last-Mile Delivery

O-R3

Autonomous Outdoor Security

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