
Signify
Enhancing safety and confidence with UV-C disinfection

UV-C for disinfection

- Introduction to Signify & current situation
- What is UV-C & how does it work
- Our solutions
- Case studies

About us: Signify is the world leader in lighting

We provide high-quality energy efficient lighting products, systems and services

Light sources	Luminaires	Systems and Services
		

No. 1

Connected , LED,
Conventional
17,700 Patents

€6.4bn

sales in 2019,
~ 75% professional

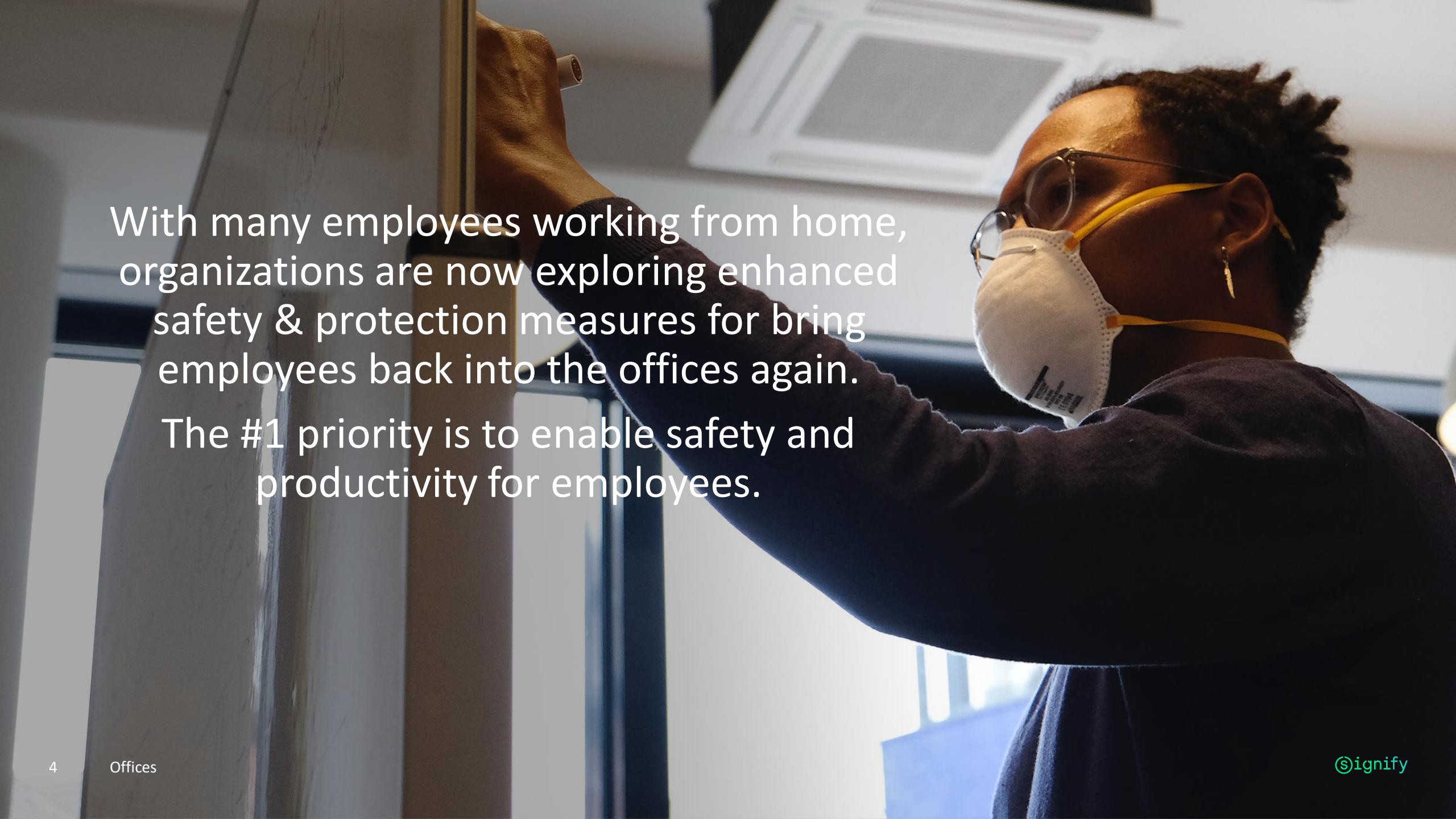
29,000

people in 70 countries

No. 1

Industry leader
Dow Jones
Sustainability Index

signify



With many employees working from home, organizations are now exploring enhanced safety & protection measures for bring employees back into the offices again.

The #1 priority is to enable safety and productivity for employees.

Virus transmission occurs through:

1. Direct air-borne transmission **between people**
2. Indirect air-borne transmission through **air flows**
3. Indirect surface-borne transmission via **contaminated surfaces**

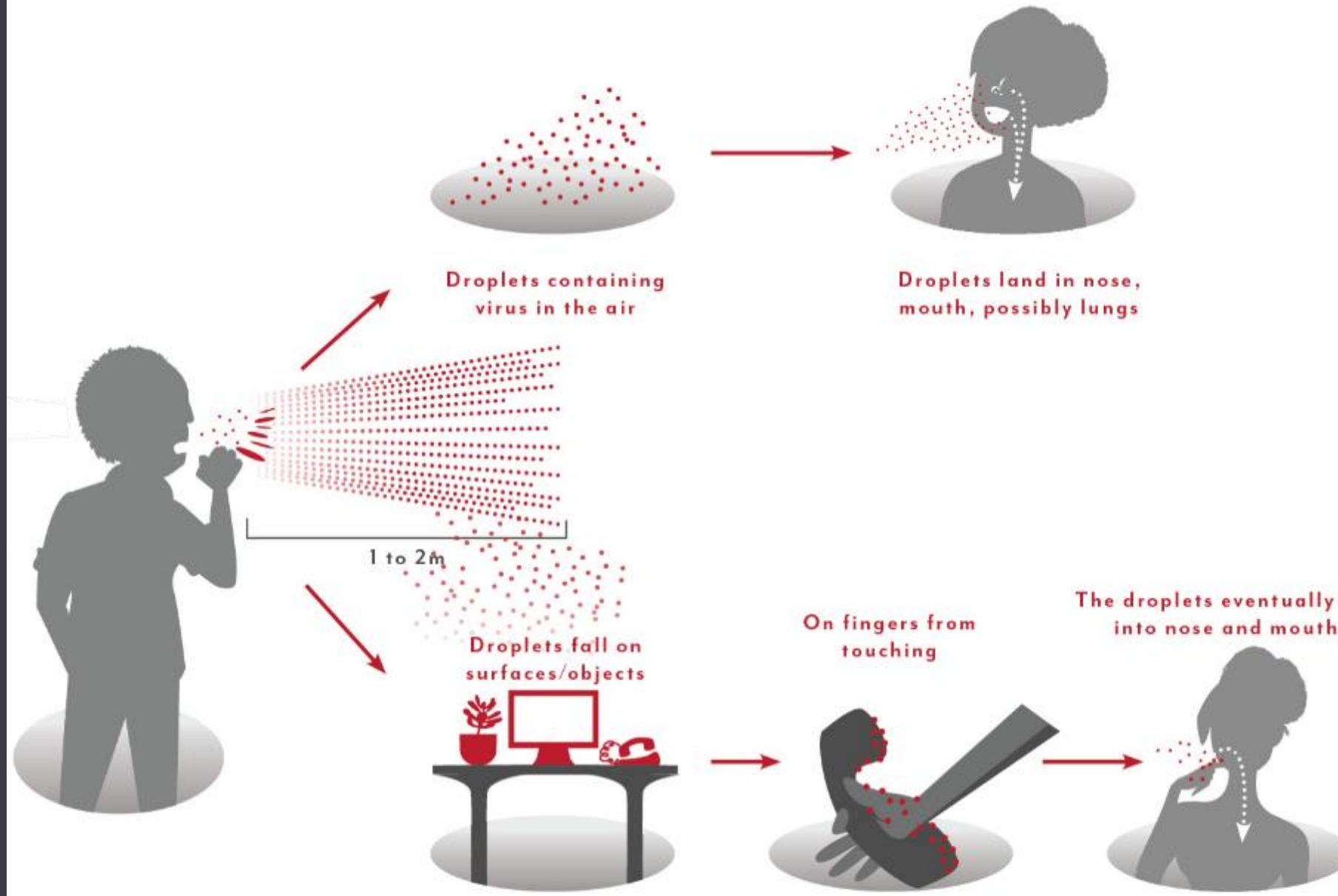
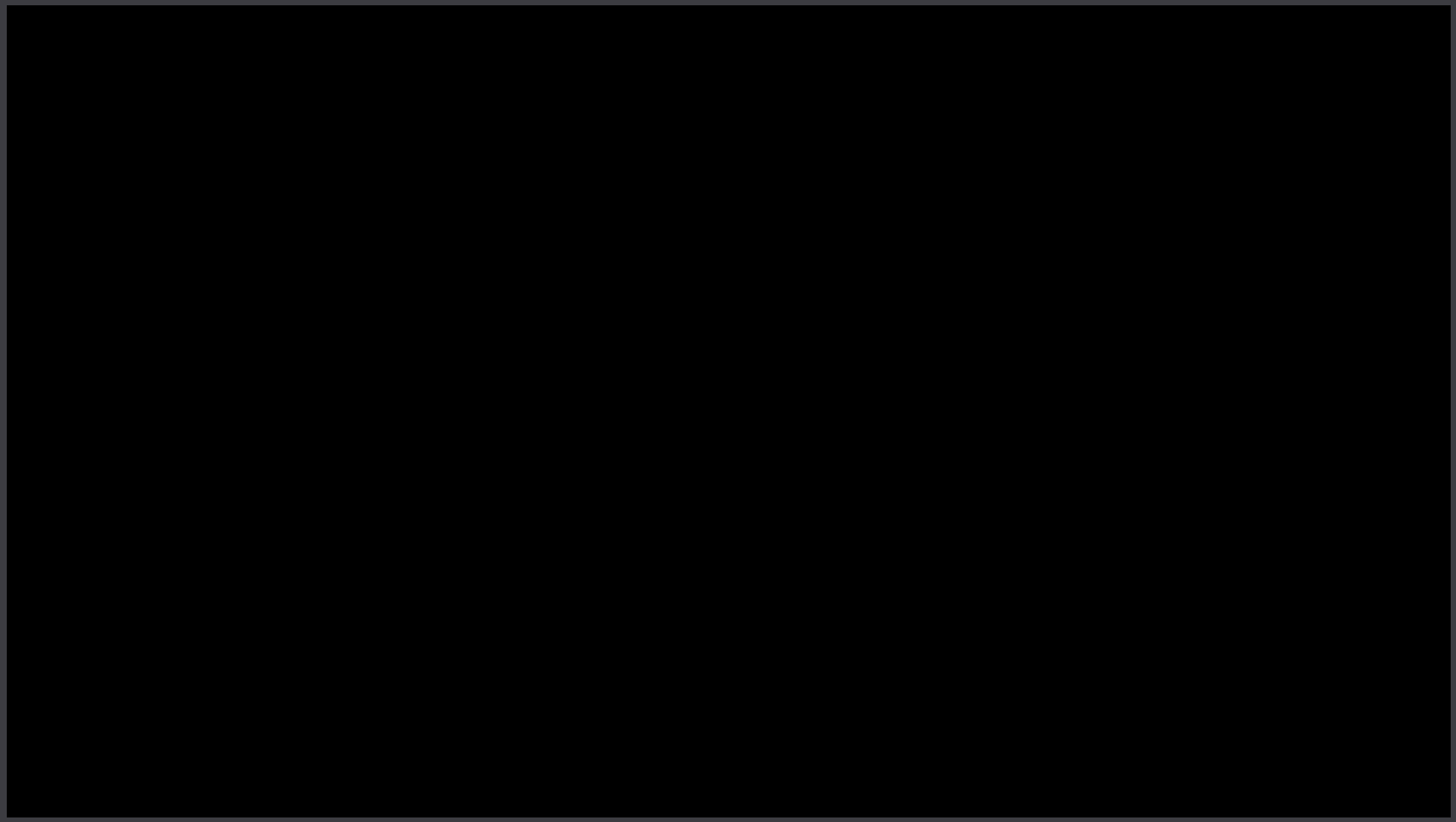
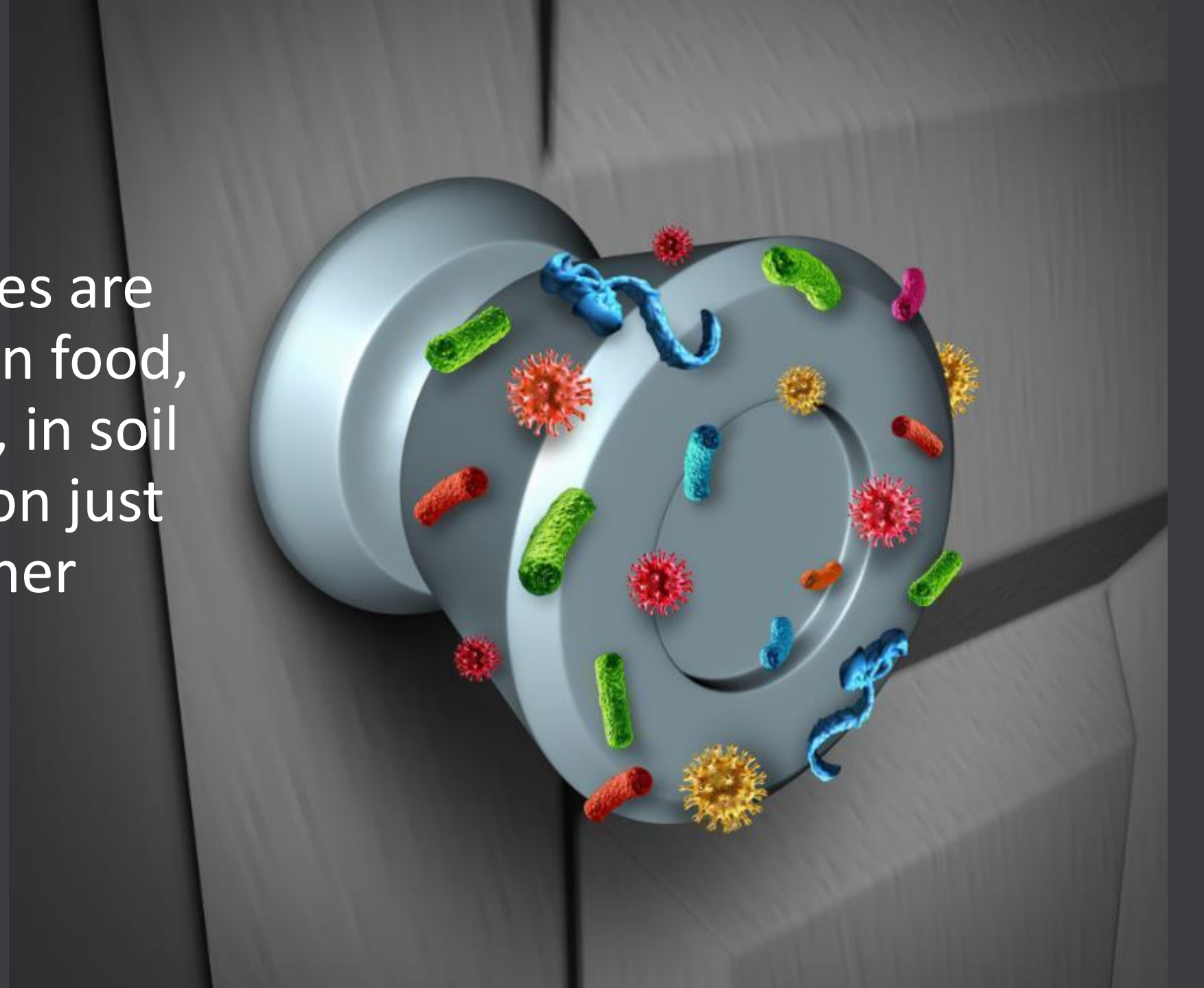


Image credit: WORLD HEART FEDERATION UNIVERSITY OF CAPE TOWN

How contaminants spread in a room



Bacteria and viruses are present in the air, on food, plants and animals, in soil and water — and on just about every other surface…

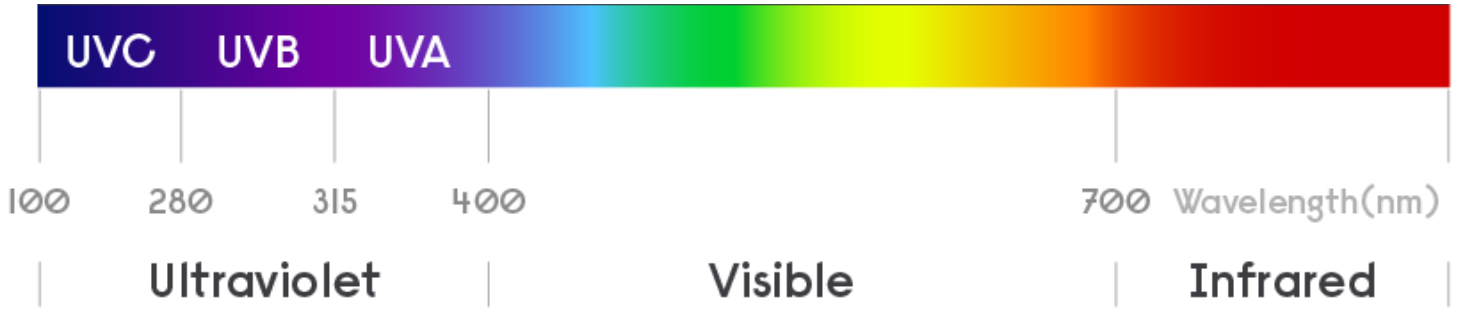


What is UV-C and how does it work?

What is UV radiation?

Ultraviolet (UV) light is invisible to human eyes. It can be subdivided into three categories:

UV-C from 200 to 280 nm	UV-B from 280 to 315 nm	UV-A from 315 to 400 nm
• For disinfection purposes and germicidal application	• For medical use (i.e. phototherapy to treat skin conditions, including psoriasis)	• For use with curing, suntanning and insect traps.

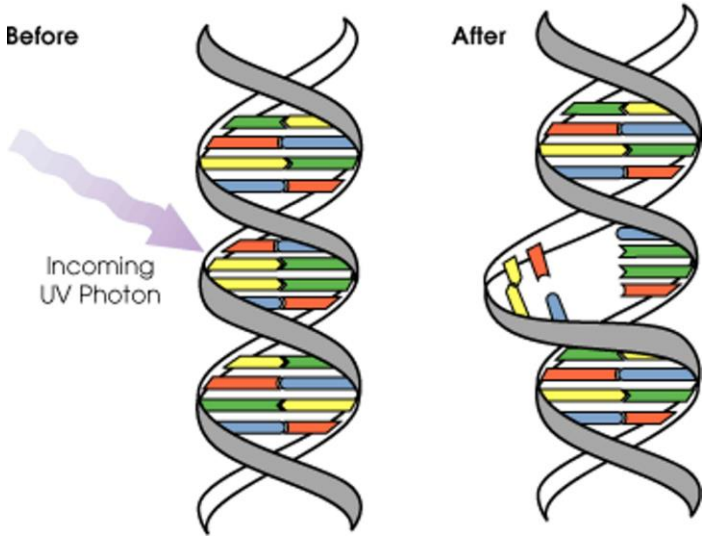


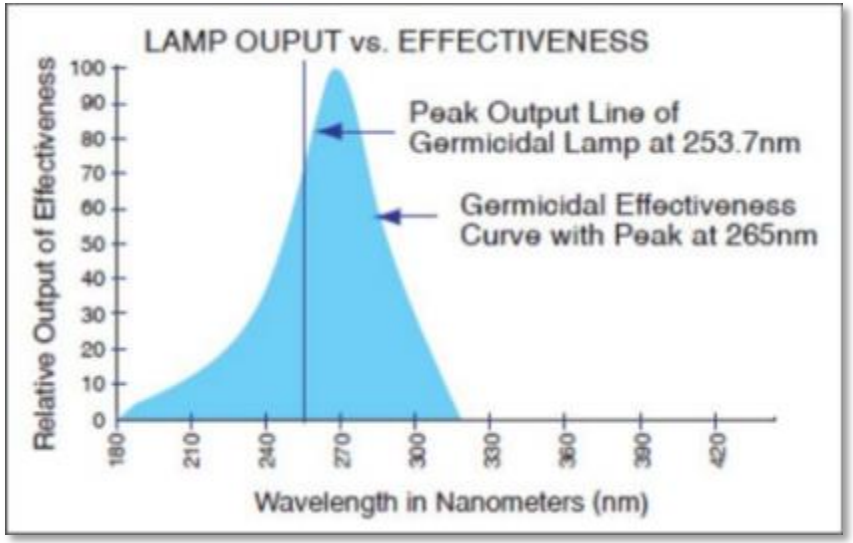
How does it work?

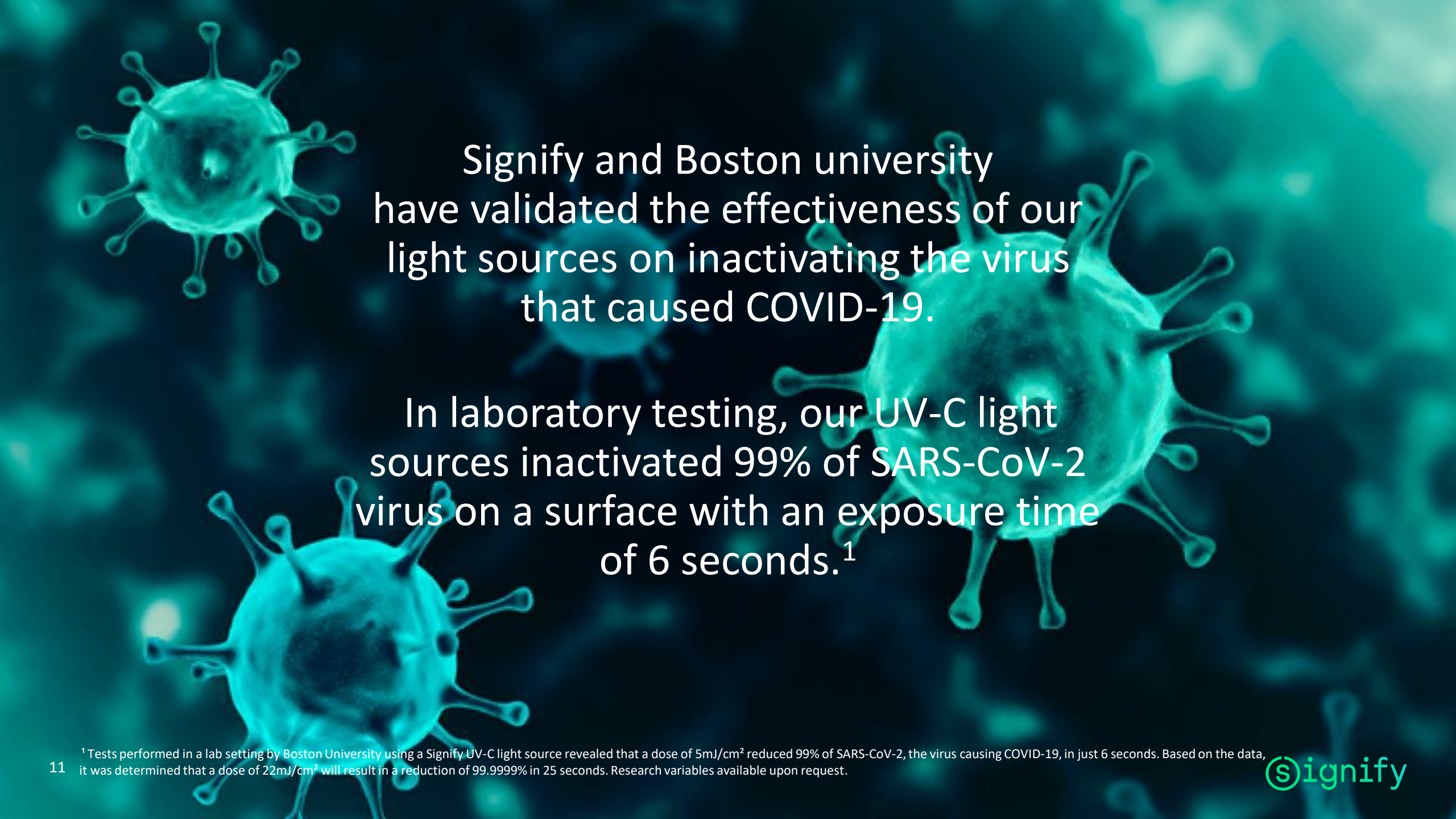
- UV-C radiation can **break the DNA and RNA** of bacteria, viruses and spores, meaning that they leave them harmless. **All bacteria and viruses tested to date respond to UV-C disinfection**.[1]
- UV-C technology has been used **safely and effectively** in hospitals and governmental buildings for more than **40 years**[2]
- Most UV-C solutions **utilise conventional lighting**, with LED now improving in efficiency
- The **peak output of our germicidal lamps (253.7nm)** is close to the maximum effectiveness of UV-C (265nm)

[1]Fluence (UV Dose) Required to Achieve Incremental Log Inactivation of Bacteria, Protozoa, Viruses and Algae Revised, updated and expanded by Adel Haji Malayeri, Madjid Mohseni, Bill Cairns and James R. Bolton. With earlier contributions by Gabriel Chevrefils (2006) and Eric Caron (2006) With peer review by Benoit Barbeau, Harold Wright (1999) and Karl G. Linden

[2]EPA Report, "Building Retrofits for Increased Protection Against Airborne Chemical and Biological Releases" Pg. 56







Signify and Boston university have validated the effectiveness of our light sources on inactivating the virus that caused COVID-19.

In laboratory testing, our UV-C light sources inactivated 99% of SARS-CoV-2 virus on a surface with an exposure time of 6 seconds.[1]

[1] Tests performed in a lab setting by Boston University using a Signify UV-C light source revealed that a dose of 5mJ/cm² reduced 99% of SARS-CoV-2, the virus causing COVID-19, in just 6 seconds. Based on the data, it was determined that a dose of 22mJ/cm² will result in a reduction of 99.9999% in 25 seconds. Research variables available upon request.

intertek
Total Quality. Assured.

- *"Our Philips UV-C disinfection upper air luminaires inactivate up to 99.9% of virus Coliphage φX174 in air within 10 minutes in a room with sufficient air circulation[1] "*

SIGNIFY NETHERLANDS B.V.

EFFICACY TEST REPORT

SCOPE OF WORK
Non-standardized Test Method: Microbial Reduction Rate Test

PRODUCT – Germicidal UV Light

MODEL – -1. Philips UV-C disinfection upper air luminaire, ceiling mount, Philips PL-S TUV lamp included: 4x9W
2. Philips UV-C disinfection upper air luminaire, wall mount, Philips T5 TUV lamp included: 25W

REPORT NUMBER
104510702COL-001

ISSUE DATE
12/31/20

PAGES
5

DOCUMENT CONTROL NUMBER
GFT-OP-10h (6-July-2017)

- More specifically for the Ceiling mounted version : *"Inactivates 99.9% of virus Coliphage φX174 in air within 10 minutes in a room with sufficient air circulation[1]"*
- More specifically for the Wall mounted version : *"Inactivates 99.7% of virus Coliphage φX174 in air within 10 minutes in a room with sufficient air circulation[1]"*

[1] Results obtained from a laboratory test conducted by Intertek, a leading worldwide quality assurance services provider. For more information, please refer to Intertek's test report "

signify

Safe usage of UV-C

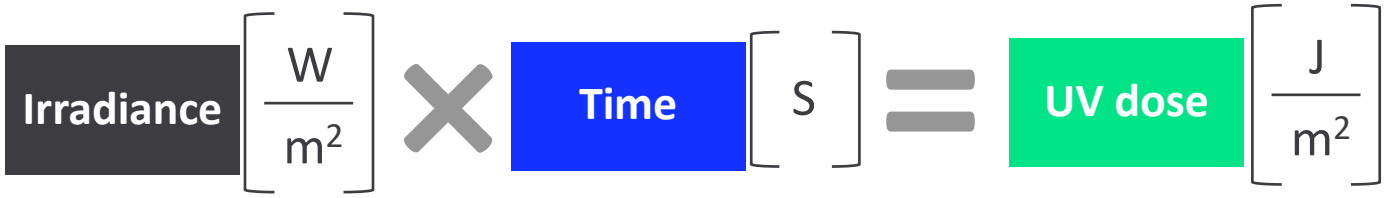
Using UV-C in a safe way

- Like any disinfection system, UV-C lamps and devices must be used properly to be safe.
- UV-C light can cause a severe sunburn-like reaction to your skin and similarly, could damage the cornea of your eye, if exposed. …this is very painful. It is therefore key that lamps are always shielded from direct radiation.
- Mandatory certification process for all projects
- All products need to follow the standard product safety releases and approbations.
- No medical claims can be made. Medical application needs clearance from Legal (local laws apply).

UV-C dose calculations

Confidently define the dose & time required to eliminate the targeted pathogens

The correct dose is based on intensity and time:



UV-C light can only inactivate those micro-organisms that it hits with a sufficient dose. Therefore micro-organisms on surfaces that are hidden or in a shadow, will not be reached and therefore not be disinfected.

Currently we're developing a calculator that provides an indication about how many UV-C lamps are needed in your luminaire for a specific application

UV dose to obtain 90% killing rate		
Bacteria	**Dose**	**k**
Bacillus anthracis	45.2	0.051
B. megatherium sp. (spores)	27.3	0.084
B. megatherium sp. (veg.)	13.0	0.178
B. parathyphosus	32.0	0.072
B. suptilis	71.0	0.032
B. suptilis spores	120.0	0.019
Campylobacter jejuni	11.0	0.209
Clostridium tetani	120.0	0.019
Corynebacterium diphteriae	33.7	0.069
Dysentery bacilli	22.0	0.105
Eberthella typhosa	21.4	0.108
Escherichia coli	30.0	0.077
Klebsiella terrifani	26.0	0.089
Legionella pneumophila	9.0	0.256
Micrococcus candidus	60.5	0.038
Micrococcus sphaeroides	100.0	0.023
Mycobacterium tuberculosis	60.0	0.038
Neisseria catarrhalis	44.0	0.053
Phytomonas tumefaciens	44.0	0.053
Pseudomonas aeruginosa	55.0	0.042
Pseudomonas fluorescens	35.0	0.065
Proteus vulgaris	26.4	0.086
Salmonella enteritidis	40.0	0.058
Salmonella paratyphi	32.0	0.072
Salmonella typhimurium	80.0	0.029
Sarcina lutea	197.0	0.012
Seratia marcescens	24.2	0.095
Shigella paradysenteriae	16.3	0.141
Shigella sonnei	30.0	0.077
Spirillum rubrum	44.0	0.053
Staphylococcus albus	18.4	0.126
Staphylococcus aureus	26.0	0.086
Streptococcus faecalis	44.0	0.052
Streptococcus hemoluticus	21.6	0.106
Streptococcus lactus	61.5	0.037
Streptococcus viridans	20.0	0.115
Sentertidis	40.0	0.057
Vibrio chlolerae (V.comma)	35.0	0.066
Yersinia enterocolitica	11.0	0.209

UV dose to obtain 90% killing rate		
Yeasts	**Dose**	**k**
Bakers' yeast	39	0.060
Brewers' yeast	33	0.070
Common yeast cake	60	0.038
Saccharomyces cerevisiae	60	0.038
Saccharomyces ellipsoideus	60	0.038
Saccharomyces sp.	80	0.029
Mould spores		
Aspergillus flavus	600	0.003
Aspergillus glaucus	440	0.004
Aspergillus niger	1320	0.0014
Mucor racemosus A	170	0.013
Mucor racemosus B	170	0.013
Oospora lactis	50	0.046
Penicillium digitatum	440	0.004
Penicillium expansum	130	0.018
Penicillium roqueforti	130	0.018
Rhizopus nigricans	1110	0.002
Virus		
Hepatitis A	73	0.032
Influenza virus	36	0.064
MS-2 Coliphase	186	0.012
Polio virus	58	0.040
Rotavirus	81	0.028
Protozoa		
Cryptosporidium parvum	25	0.092
Giardia lamblia	11	0.209
Algae		
Blue Green	3000	0.0008
Chlorella vulgaris	120	0.019

signify

Applications, recommendations and solutions

UV-C Solutions portfolio.

UV-C Upper Air

Application areas – General air purification

All professional indoor applications:

Meeting rooms, retail, hotel rooms, schools, universities, banks, gyms, restaurants.

- Typically 1 unit per 4m x 4m area

Available now

Once BioShift®

Large chamber

Small chamber

Application areas : Object / device cleaning

- Office and industry: mail rooms, reception, factories, distribution centers
- Retail & government: shared devices

Available now

UV-C Battens

Application areas – Indoor general room/ surface/space cleaning:
Pharmacies, retail, gym, spa, industries, cleanrooms, industrial kitchens, restaurants, transport, hotel rooms, schools, universities, banks,

- System to Include fixtures, safety devices, lighting design and exposure time calculations

Available now

Philips UVC Chamber

Medium chamber

Application areas : Object / device cleaning

- Office and industry: mail rooms, reception, factories, distribution centers
- Retail & government: shared devices

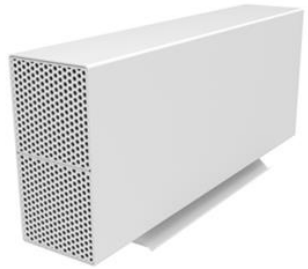
Available now

Pricing will be discussed & confirmed on a project by project basis

signify

New Solutions under review/ in development…..

Active UV-C Air unit



Application areas – General air purification

All professional indoor applications:

Spaces with low ceiling <2.5M
Spaces with no air circulation
Space with highly sensitive objects /goods

Museums, Art gallery, Control rooms, banks, gyms, restaurants, fashion retail

Deliveries in Q2

Mobile UV-C Trolleys

Application areas : General room/ space cleaning

All professional indoor applications:

- Pharmacies, dentists, treatments rooms, hotel rooms, schools, universities, banks, retail outlets, gym, spa, industries, cleanrooms, industrial kitchens, restaurants, transport

Deliveries in Q3

Mobile Active UV-C purification unit

Application areas – General air purification

All professional indoor applications:

Spaces with low ceiling <2.5M
Spaces with limited/no air circulation
Space with highly sensitive objects /goods

Museums, Art gallery, Control rooms, banks, gyms, restaurants, fashion retail

TBC

Projects , availability & pricing will be discussed & confirmed on case by case basis

signify

Air disinfection

Air disinfection Solutions

UV-C upper air luminaires

- Intended to be used for the disinfection of the air within a given space/ room
- Flexibility - fixtures radiate UVC directly and only into the upper part of the ceiling – can be used in the high traffic / density spaces.
- It has been proven to be **effective in healthcare settings to reduce exposure to viruses such as Tuberculosis** [1]
- Results in cleaner air in the space, **equal to 18-24 air changes per hour**

Coverage

- Ceiling and wall mounted options to suit your layout
- Typical coverage of 20m^2

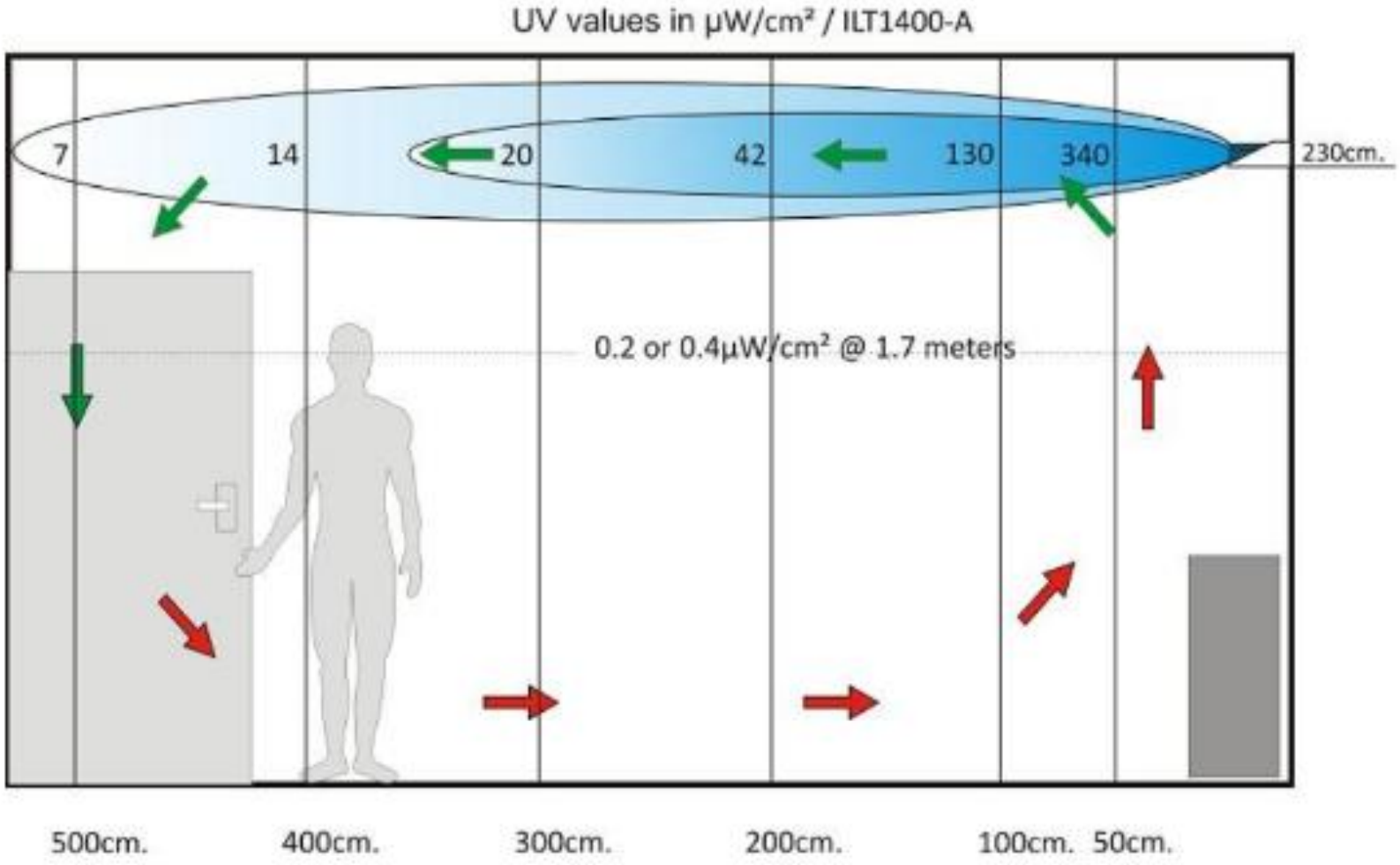
Safety

- ✓ Positioned above the highest door in a room and at a minimum height of 2.3m, out of the reach of people to disinfect the air at this level as it circulates
- ✓ Integrate with Interact to enable scheduled operation, remote control and monitoring

[1] National Institute for Occupational Safety and Health [2009], *Environmental Control for Tuberculosis: Basic Upper-Room Ultraviolet Germicidal Irradiation Guidelines for Healthcare Settings*, 2009 -105

Air disinfection Solutions

Upper air solutions provide an ideal way to disinfect air while the space is still occupied



UV-C Upper Air Disinfection

Philips UV-C Upper Air disinfects the air in the upper part of spaces & rooms to allow people to work safely below

Ceiling Mounted(SM345C)

Wall Mounted (WL345W)

Wall Mounted (WL346W)

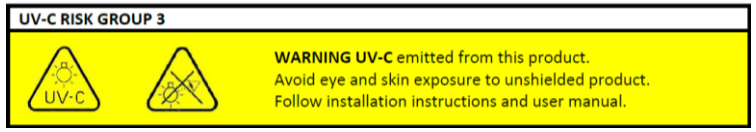
Key Features and Benefits

- **Philips UV-C upper air passive disinfection devices** are designed for **low ceiling heights of up to 3 metres** and installed in either **false recessed ceilings, suspended, surface mounted** or **mounted on walls**.
- The **beam of UV-C rays** is mainly **distributed horizontally by the devices' louvres** which reduces reflection on the ceiling and also being **controlled around the device by aluminum reflectors**
- Allows for the **disinfection of the maximum volume of air while ensuring safety and continuity of day-to-day business**: the **devices can be used in the high traffic/density spaces and in the presence of people and animals**.
- High-reflective and durable aluminum housing improves performance by directing the UV-C light to the targeted irradiated surfaces.
- Replaceable UV-C light sources with **1-lamp(T5 25W) and 4-lamp(Compact mercury 9W) versions**
- UV radiation wavelength peak at 254nm output (Philips UV-C lamps) inactivates the DNA & RNA of bacteria, viruses and spores
- **Environmentally friendly** - **no ozone emissions during or after use**.

Applications

- For use in offices, retail, food outlets, hospitality, schools, banking, washrooms and other high-contact areas where airborne bacteria and viruses can easily spread

Length	Number of UV-C lamps	Lamp Wattage	Gear	Exposing angle	Total UV-C Output	Mounting	Material	Temperature	Lifetime	Ratings	Warranty
SM345C	4 x TUV PL-S (Mercury)	9W	High Frequency (HF-M)	360°	335mW	Ceiling Mounted (Recessed plate) Surface,Suspended	Aluminium (Housing & Reflectors)	+20°C to + 40°C	Lamps:9,000hrs 90% UVC @ end of life	IP20 IK02	1 Year
WL345W	1 x TUV T5	25W	High Frequency (HF-S)	150°	370mW	Wall Mounted (Bracket mounting)					
WL346W					530mW						

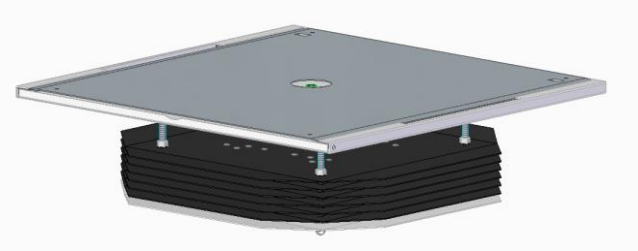


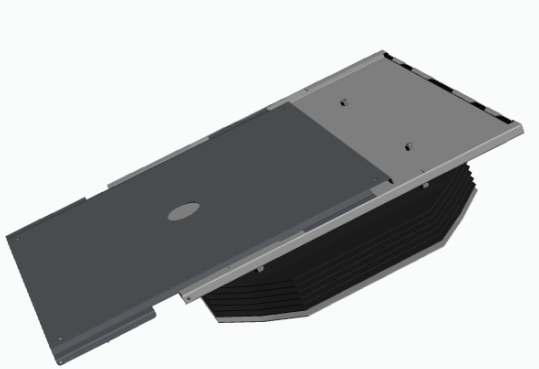
This UV-C product is not approved and/or certified as a medical device.

UV-C Upper Air : Surface & Suspended Ceiling version

Surface mounted version

919206000101 SM345C 4xTUV PLS 9W HFM SMB

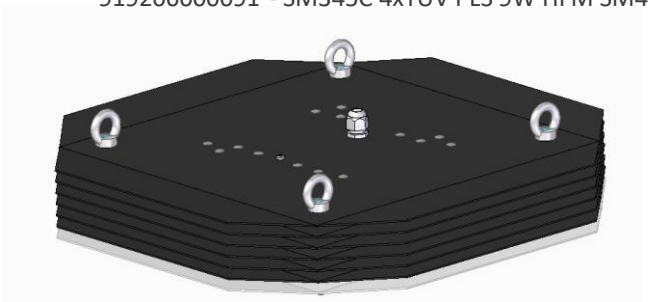


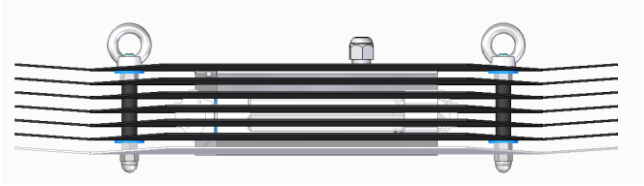


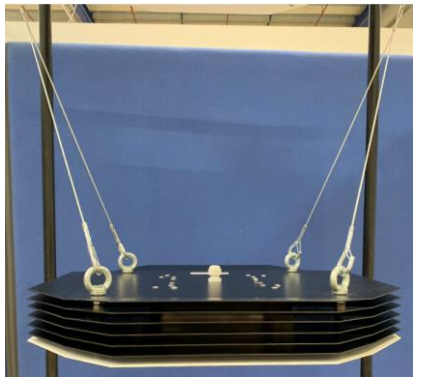
Surface mounted using a
ceiling plate in a false recessed ceiling

Suspended version

919206000091 - SM345C 4xTUV PLS 9W HFM SM4







Suspension Kit included

signify

Example installation using upper air units

Signify

Surface disinfection

Surface disinfection Solutions

UV-C battens

- A fixed installation of luminaires on the ceiling are used at controlled times to fill a room or enclosed space with disinfecting UV-C radiation
- Provides disinfection outside of working hours for high contact areas such as material handling equipment

Coverage

- To ensure adequate coverage, our design team can help to create a layout with placements for your space

Safety

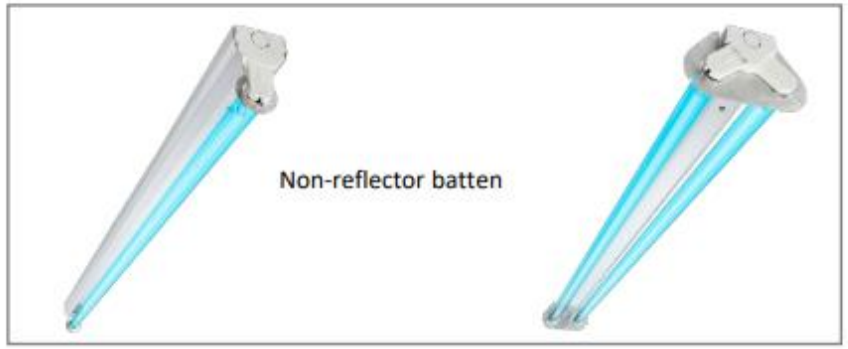
✓ Multiple safeguard options to be considered as a system

✓ Multiple, redundant occupancy detection methods to be designed in:

- Built in occuopancy sensor
- Occupancy sensors in the space deactivate the system if someone is present during operation
- Door sensors at each entrance provide a further deactivation trigger in case anyone tries to enter the space during operation
- Visible and audible triggers can be used during operation

Philips UV-C Batten TMS030 for Surface Disinfection

Philips UV-C TMS030 Batten luminaires with UV-C T8 lamps are designed for the disinfection of surfaces



Key Features and Benefits

- **Philips UV-C battens disinfect surfaces that are directly exposed to the UV-C light emitted by the UV-C batten.**
- **UV-C batten provides universal UV-C irradiance with homogenous light distribution**
- **Ceiling or wall mounted (adjustable bracket)** fixture options help to **radiate UV-C directly on the surface.**
- **Non-reflector battens** and **reflector versions provide better beam control for the required UV-C dose.**
- **High-reflective and durable aluminum housing** improves performance by directing the UV-C light to the to-be-irradiated surfaces.
- Disinfection capability is based on wattage used and a specific exposure time for a given distance from that surface.
- **All plastic components (lamp holders & end caps)** are **protected by dedicated UV-C shielding.**
- **Replaceable UV-C light sources** with **1-lamp(T8 18W) and 2-lamp(T8 36W)** versions
- UV radiation wavelength peak at 254nm output(Philips UV-C lamps) inactivates the DNA & RNA of bacteria, viruses and spores
- **Environmentally friendly - no ozone emissions during or after use.**

Type	Length	Number of UV-C lamps	Lamp Wattage	Gear	Reflector	UV-C irradiation values @ 2m distance	Mounting	Material	Temperature	Ratings	Lifetime	Warranty
Philips TMS030 UV-C Batten	614mm(2ft) 1224mm(4ft)	1 x T8 TUV or 2 x T8 TUV	18W or 36W	High Frequency Performer (HFP)	No reflector (TMS030)	up to 0.92 µW/cm2	Ceiling or Wall (adjustable bracket)	Aluminium (Housing & Reflector)	+20°C to + 40°C	IP20 IK02	Lamps:9,000hrs 90% UVC @ end of life	TMS030 luminaire: 1 year
					With reflector (TMS030R)	up to 1.22 µW/cm2						

Safeguards

- Complies with all applicable regulations and standards (UV-C RISK GROUP 3IEC 62471)
- Combined with safeguards such as controlled-access devices, it is used safely.
- No person or animals should be present at the time of usage, due to high risk of harm to eyes and skin.
- This UV-C product is not approved and/or certified as a medical device.

Philips UV-C Batten with sensor TMS031 for Surface Disinfection

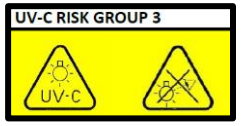
Philips UV-C TMS031 Batten luminaire with sensor & UV-C T8 lamps designed for the disinfection of surfaces

Batten with external microwave sensor

Key Features and Benefits

- **Philips UV-C battens disinfect surfaces that are directly exposed to the UV-C light emitted by the UV-C batten**.
- UV-C batten provides **universal UV-C irradiance with homogenous light distribution**
- ***Additional safeguard of a microwave sensor eliminates the need for a more complex controls installation***
- Includes safeguards such as an **integrated microwave sensor that automatically shuts down the UV-C batten when a person or animal is sensed.**
- **Mirror optics to cut off UV-C irradiance beyond the sensor coverage area**.
- **Sensor Timer Pre-Sets** for 30 mins, 1hr, 2hr and 3hrs for setting as per application**.**
- **Reflector/louvres provide better beam control for the required UV-C dose**
- Enhanced performance by a **highly-reflective** and durable aluminum body **directs the UV-C light to the desired -irradiated surfaces and within the sensor range.**
- **All plastic components** (**lamp holders & end caps**) are **protected by dedicated UV-C shielding**.
- **Replaceable UV-C light source** with **1-lamp(T8 36W)**
- UV radiation wavelength peak at 254nm output(Philips UV-C lamps) inactivates the DNA & RNA of bacteria, viruses and spores
- **Environmentally friendly** - **no ozone emissions during or after use**.

Type	Length (inc sensor)	Number of UV-C lamps	Lamp Wattage	Gear	Sensor	UV-C irradiation values @ 2m distance	Mounting	Material	Temperature	Ratings	Lifetime	Warranty
Philips TMS031 UV-C Batten	1320mm	1 x T8 TUV	36W	High Frequency Performer (HFP)	Microwave sensor	up to 0.92 µW/cm2	Suspended, Surface	Aluminium (Housing & Reflector)	+10°C to + 45°C	IP20 IK02	Lamps:9,000hrs 90% UVC @ end of life	TMS031 luminaire: 1 year

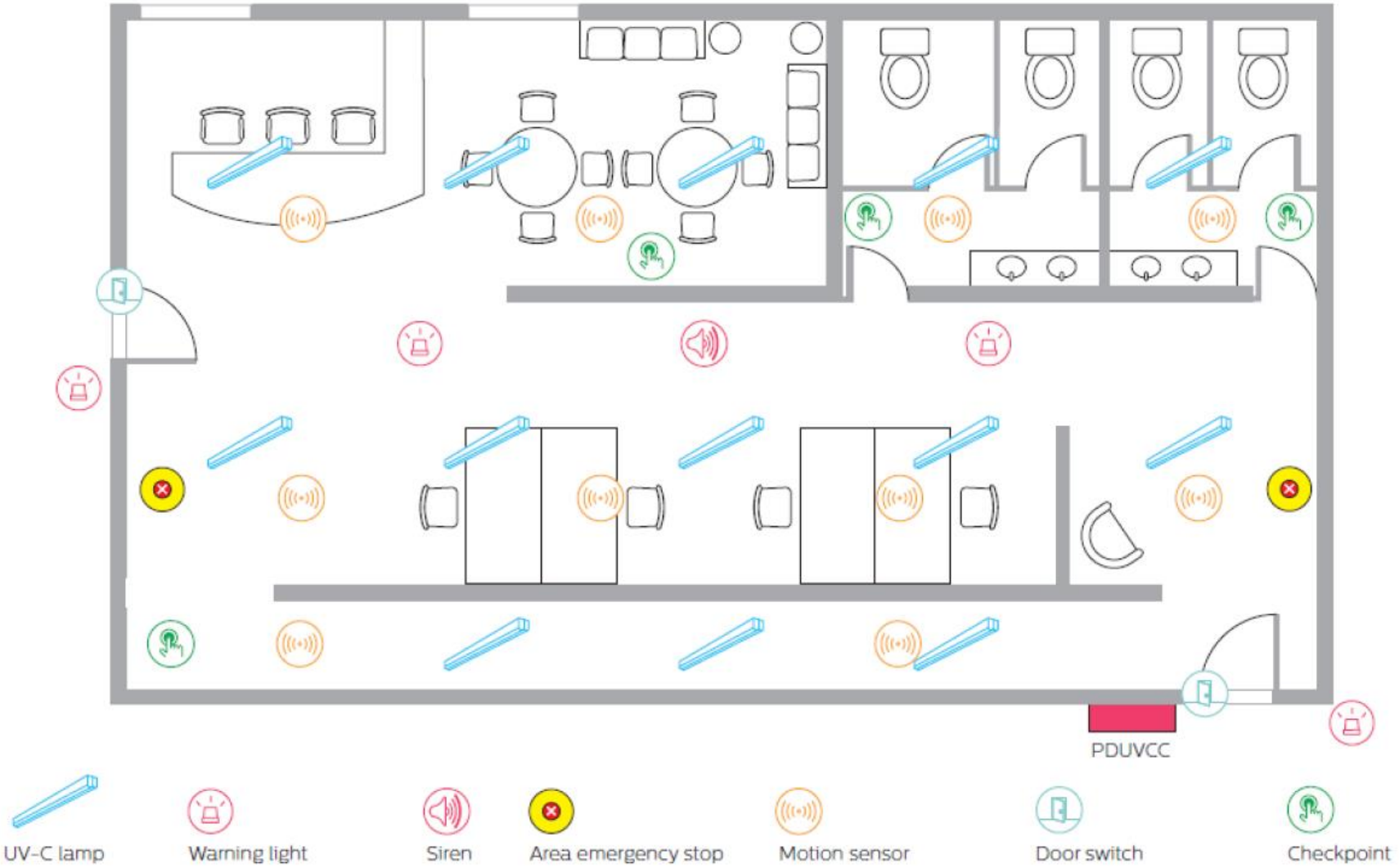


Safeguards

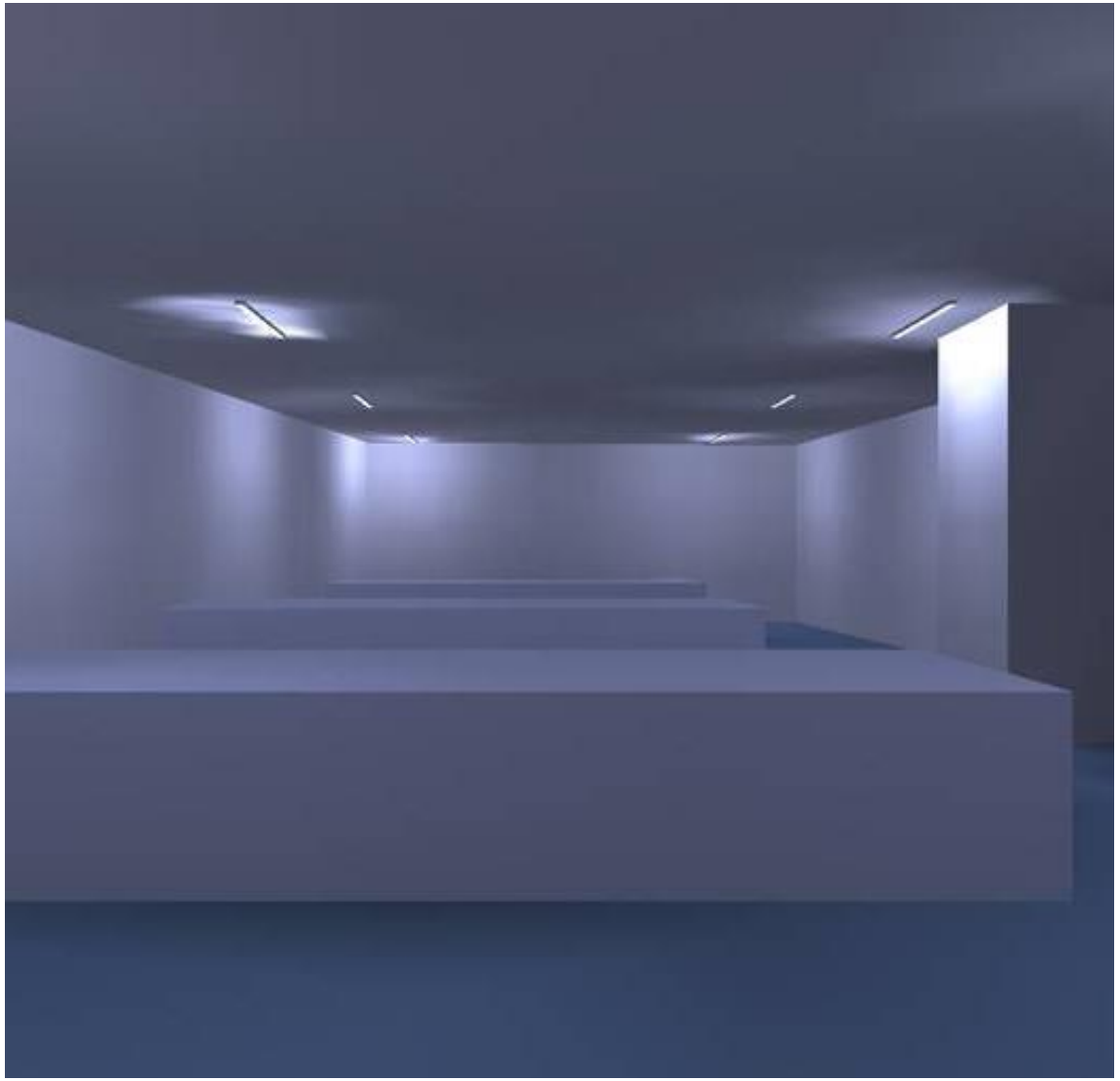
- Complies with all applicable regulations and standards (UV-C RISK GROUP 3IEC 62471)
- Combined with safeguards such as controlled-access devices, it is used safely.
- No person or animals should be present at the time of usage, due to high risk of harm to eyes and skin.
- This UV-C product is not approved and/or certified as a medical device.

signify

Typical example of safeguards required for a larger batten installations..



Batten installation for computer lab



	Minimum Calculated mW/m2	Minimum Calculated W/m2	Covid requirement (joules)	Exposure in Seconds	**Exposure in Minutes**
Option 1	185.3	0.1853	280	1511.06314	**25.184385**
Option 2	100.3	0.1006	280	2783.30019	**46.388336**

signify

Signify

Object disinfection

Object disinfection Solutions

Philips UV-C C200 medium chamber

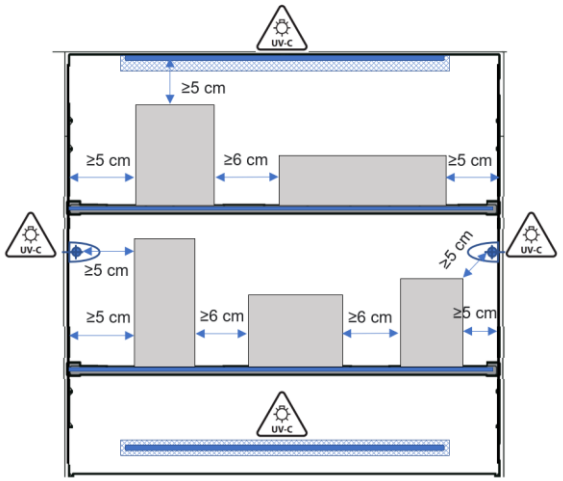
- Simple, Safe and effective way to disinfect objects
- Inactivates the majority of viruses in a recommended five-minute disinfection cycle
- One touch operation with pre-set timer for easy to use (turn knob timer and a on/off switch
- Chemical-free disinfection

Safety

✓ Tempered glass inspection window for safe visual access to objects and visual assurance that all the UV-C lamps are operational during disinfection cycle

✓ 2 safety sensor switches behind the chamber door that turn off UV-C lamps in case of accidental door opening during disinfection process

Objects	Object size	Recommended disinfection time	Placement
2 Medium objects(M)	400mm*350mm*120mm	10 mins*	
1 Small object (S)	150mm*150mm*150mm	3 mins*	
2 Small object (S)	150mm*150mm*150mm	5 mins*	
1 Large object(L)	400mm*350mm*320mm	10 mins*	
>2 small small objects (XS)	150mm*135mm*120mm	10 mins*	



Philips UV-C C200 Medium Chamber for Disinfection of Objects

Philips UV-C Chamber provides fast & effective disinfection in a safe & secure environment

C200 Medium Chamber(2 trays)

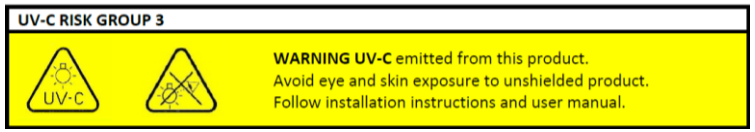
Key Features and Benefits

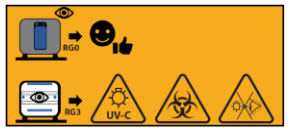
- **Effective UV-C disinfection with 99.99% (Log4)inactivation of Covid-19 (SARS-CoV-2) in 3~10 mins**
- **Disinfection of objects** with **360-degree UV ray coverage to all surfaces of object**
- **High reflective coating interior and a woven mesh tray** structure minimizes shadowing and maximizes UV-C dosage for fast & effective disinfection.
- **Removable upper tray design** to fit larger sized objects in the chamber(**Max 6Kg per tray**)
- **Tempered glass inspection window for safe visual access to objects** and visual assurance that all the UV-C lamps are operational during disinfection cycle
- **Safe & secure with pre-set timer** to avoid over exposure & ensure longer lamp life.
- **2 safety sensor switches** behind the chamber door that turn off UV-C lamps in case of accidental door opening during disinfection process
- UV radiation wavelength peak at 254nm output(Philips UV-C lamps)inactivates the DNA & RNA of bacteria, viruses & spores
- Environmentally friendly – **chemical free & no ozone emissions during or after use**.

Applications

All professional indoor applications for bacteria & virus disinfection (non-medical use) including post rooms, reception areas, schools & universities, production, and distribution centers in the office and industry sector, and shared devices in the retail & hospitality such as restaurants, fitness centres, personal services including hairdressing & nail salons etc.

Length	UV-C lamps	Lamp Wattage	Capacity/Trays	UV-C irradiation values	Safety	Material	Operating Temperature	Dimensions/ Weight	Lifetime	Ratings	Warranty
C200 Medium Chamber	5 x TL mini TUV	16W (Max 80W)	0.11m³ (110 litres) 2 woven mesh trays Upper is removeable 1 tray (Max 6kg)	@20cm : 1100 µW/cm²	Dial knob control Pre-set timer(2/5/10 & max 20 mins) Auto-stop(2 safety switches at top & bottom of door panel) Emergency stop(Mains switch)	Tempered glass window. Stainless-steel chamber Height adjustable legs	10°C to + 40°C	590(W) x 560(D) x 660(H)mm 22Kg	Lamp: 11,000hrs	IP20	1 Year





This UV-C product is not approved and/or certified as a medical device.

Object disinfection Solutions

Once BioShift® germicidal chamber

- Inactivates the majority of viruses in under 1min
- Rugged shelving supports heavy items
- Pass-through lockout protects against accidental exposure
- Heavy-duty stainless-steel chamber
- Chemical-free disinfection
- Two formfactors; Small (600 mm H x 585 mm L x 750 mm W) and Large (1828 mm H x 1180 mm L x 762 mm W)
- Detailed cycle control and performance monitoring

Safety

✓ To ensure sufficient dose is provided in the BioShift®, the controller can frequently sample the UV dose. UV dosimeter card is placed in the center of the unit, and the 'dose test' is run via the maintenance screen

Home Screen Components
(1) Disinfection Time Display
(2) Chamber Start / Stop
(3) Chamber Status
(4) Settings
(5) Maintenance

Settings Screen Components
(1) View Set Lamp Cycle
(2) Set Lamp Cycle
(3) Set Sleep Time
(4) Expired Lamp Life
(5) Contact ONCE®

Maintenance Screen Components
(1) View Lamp Life Remaining
(2) Reset Lamp Life
(3) View Lamp Replacement Info
(4) Run 100mJ/cm2 Dose Test
(5) Run 250mJ/cm2 Dose Test
(6) Run 1000mJ/cm2 Dose Test

*https://www.once.lighting/one-minute-three-minutes-or-ten-minutes-oh-my/

Philips BioShift UV-C Chamber for Disinfection of Objects

Philips UV-C Chambers provide fast & effective disinfection in a safe & secure environment

Small Chamber(1 tray)

Large Chamber (4 trays)

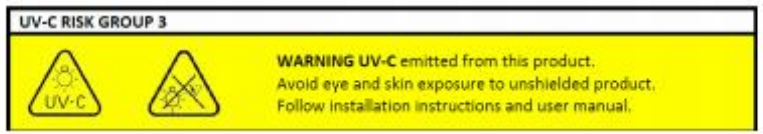
Key Features and Benefits

- **Fast & effective UV-C disinfection with 99.99% inactivation of Covid-19 (SARS-CoV-2) in <1min from a single cycle**
- **Disinfection of small or large size objects** with **360-degree UV ray coverage to all surfaces of object**
- **Small chamber** allows for easy placement on top of a counter, without taking up too much valuable space, while the **large chamber** is great for use when higher volumes of disinfection is needed.
- Safe & secure as the pass-through lockout system protects against accidental exposure.
- **Replaceable UV-C light sources** with **4-lamp(20W) for the small** and **18-lamp(40W) for the large versions**
- UV radiation wavelength peak at 254nm output(Philips UV-C lamps)inactivates the DNA & RNA of bacteria, viruses and spores
- Environmentally friendly – **chemical free & no ozone emissions during or after use**.

Applications

- Suitable for professional indoor applications including post rooms, reception areas, production, and distribution centers in the office and industry sector, and shared devices in the retail, hospitality and governmental sector

Length	Number of UV-C lamps	Lamp Wattage	Capacity/Trays	UV-C irradiation values	Safety	Material	Operating Temperature	Lifetime	Ratings	Warranty
Small Chamber	4 x TUV	20W	0.13m³ 1 tray (Max 66kg) (6 handheld scanners)	>1000 µW/cm2	PLC timer with touchscreen display Magnetic door latches Electric door locks Emergency stop button	Heavy-duty stainless-steel chamber	18°C to + 40°C	Lamp: 3,000hrs or 1,000 UV-C cycles	IP50	TBC
Large Chamber	18 x TUV	40W	1.64m³ 4 trays (80 hand held scanners)	1000 µW/cm2						



This UV-C product is not approved and/or certified as a medical device.

Signify

Active Upper Air

UV-C Active air disinfection unit

Principle of disinfection

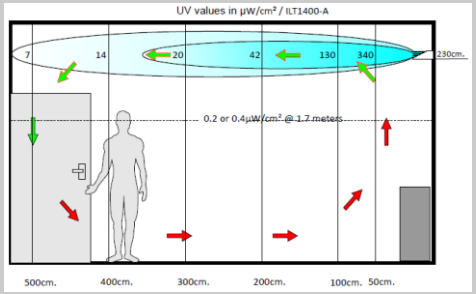
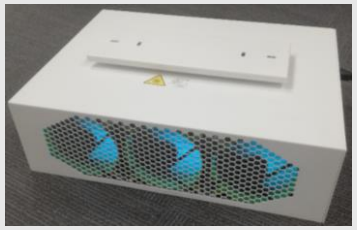
3. Clean air is released from the device

2. The air is then exposed to intense UV-C irradiance, passing all around the UV-C lamps

1. The air in the room is sucked into the device thanks to ventilators at one extremity. Dust and big particles are removed by a filter

signify

Positioning versus current upper air units

Type	Method	Application
Upper air	Air disinfection is done by the UV-C spread in the upper part of a room and the help of external mechanical or natural ventilation 	• Continuous operation while business activity continues • Use in most building applications like offices, warehouse, waiting rooms, etc. • Optimized for medium height ceiling applications (2.5m and above) • Scientifically proven efficacy in medical settings
Closed upper air	Air disinfection is done within the device, the room air is sucked in thanks to ventilators, exposed to UV-C, and disinfected air comes out of the device 	• Continuous operation while business activity continues • Food production unit, maturing rooms, museums, and in general any applications where environment and/or product is sensitive to UV-C radiation • Best for low ceilings applications (2.5m and below) • Small rooms (phone booth, etc.) • Rooms with no air flow • Local point to point disinfection needs • Any application for which the customer/space is not suitable for Upper air

UV-C Active air disinfection unit

Test report sample from an existing product at Imperial (not the final product result)

European Translation Agency – Certified Translation Department
PL - 00-336 Warsaw, Kopernika 30 Street, fax: 022 244 22 07
tel: +48 693 333 333 e-mail: info@e-ling.eu
Website: www.e-ling.eu – 24h service

EUROPEJSKIE BIURO TŁUMACZEŃ PROXIMUSS POLSKA ul. Kopernika 30, 00-336 WARSZAWA II ODDZIAŁ

Barbara Jurczyńska
Certified Translator of English

CERTIFIED TRANSLATION FROM POLISH INTO ENGLISH

INSTITUTE OF BIOTECHNOLOGY FOR THE AGRICULTURAL AND FOOD INDUSTRY NAMED AFTER PROF. WACŁAW DĄBROWSKI

FOOD QUALITY PLANT
92-202 Łódź, Al. Marszałka J. Piłsudskiego 84
tel. (+48 42) 636 92 11, (+48 42) 636 55 72, (+48 42) 674 64 14 int. 320, fax (+48 42) 674 81 24
zj@ibprs.pl
NIP [*tax identification number*]: 525-000-82-64
REGON [*National Business Registry number*]: 000053835-00026

[*blue rectangular stamp with the following wording:*
Institute of Biotechnology for the Agricultural and Food Industry
named after Wacław Dąbrowski
02-532 Warsaw, ul. Rakowiecka 36
NIP: 525-000-82-64, REGON: 000053835
FOOD QUALITY PLANT
92-202 Łódź, Al. Marszałka J. Piłsudskiego 84
tel. (42) 674 64 14, (42) 636 92 11, tel./fax (42) 674 81 24]

1/1

Łódź, 26-08-2020

Test report No. K/313/01/2020

Tested object: type B Air 2 x 55W UV air disinfection lamp

Client: IMPERIAL sp.z o.o. s.k.
78-200 Białogard
ul. Kołobrzeska 8e

The object for testing was collected and delivered by the client on: 13-08-2020
The test started on: 19-08-2020
The test was completed on: 25-08-2020

European Translation Agency – Certified Translation Department
PL - 00-336 Warsaw, Kopernika 30 Street, fax: 022 244 22 07
tel: +48 693 333 333 e-mail: info@e-ling.eu
Website: www.e-ling.eu – 24h service

EUROPEJSKIE BIURO TŁUMACZEŃ PROXIMUSS POLSKA ul. Kopernika 30, 00-336 WARSZAWA II ODDZIAŁ

Type of marking / feature	Analytical method	Results	
Microbiological parameters			
Testing the level of air pollution during the operation of the lamp in a room with an area of 30 m^2 and a height of 2.9 m	Own methodology with the use of the MAS-100 ECO ™ microbiological air sampler, MAS-100 Eco ™ instruction	*[unit/l m^3]	Microbial reduction
- total microbial count at the beginning of the test (0 hour)		514	-
- total microbial count after 2 hours		147	R_{2h} = 71,40%
- total microbial count after 6 hours		113	R_{6h} = 78,02 %
- total microbial count after 20 hours		19	R_{20}h = 98,15%
- the number of mould and yeast at beginning of the test (0 hour)		237	-
- the number of mould and yeast after 2 hours		120	R_{2h} = 49,37%
- the number of mould and yeast after 6 hours		51	R_{6h} = 78,48 %
- the number of mould and yeast after 20 hours		17,5	R_{20h} 92,62 %

* The results constitute the mean number of microorganisms from two measurements.

				Microbial reduction			
	test room Surface	ceiling height	airflow	t=0h	t=2h	t=6h	t=20h
Imperial	30m²	2.9m	80m3/h	514	147	113	19
% reduction					71%	78%	98%
Lug	25m²	2.9m	87m3/h	1778	656	335	23
% reduction					63%	81%	99%
Ultraviol	24m²	2.9m	132m3/h	2050	1061	584	32
% reduction					48%	71%	99%

UV-C Active air disinfection unit

	Preliminary specs
Construction and design	Aluminum body
Installation	Surface mounted on ceiling, or wall mounting
Net air flow	120m3/h
Filters	Dust filter
Control	On/Off
Safety	Control window, Lamp burning hours counter, total switch off in case of component failure
UV-C Source/ballast	2x TUV PL-L60W Philips lamps / 1 Philips ballast HF-S 175 UV TL-D/PL-L
Mains connexion	2m cable and Euro plug for indoor use
Operating temperature	0°...+35°C
Marking	CE
Expected result	>70% microbiological reduction after 2h of operation
Pricepoint	TBC
Expected release date	End Q1/2021

Signify

Mobile UV-C Trolleys

Surface disinfection Solutions

UV-C trolleys

- ✓ 360 degree UV-C exposure to ensure disinfection of all surfaces within line of sight
- ✓ Flexible solution – can be placed and moved room by room

Coverage

- Designed to disinfect up to 30sqm of surfaces in line of sight[2]
- Multi arm options to provde more flexibility

Safety

- ✓ Timer to plan disinfection for a predefined period.
- ✓ Remote control - staff can safely position and leave before disinfection is started
- ✓ Motion sensors - automatically stop disinfection if someone enters within range of the sensors

[1] Tests performed in a lab setting by Boston University using a Signify UV-C light source revealed that a dose of 5mJ/cm² reduced 99% of SARS-CoV-2, the virus causing COVID-19, in just 6 seconds. Based on the data, it was determined that a dose of 22mJ/cm² will result in a reduction of 99.9999% in 25 seconds. Research variables available upon request.
2Detailed design and effectiveness guidelines are being finalized, we will publish product guides soon

signify

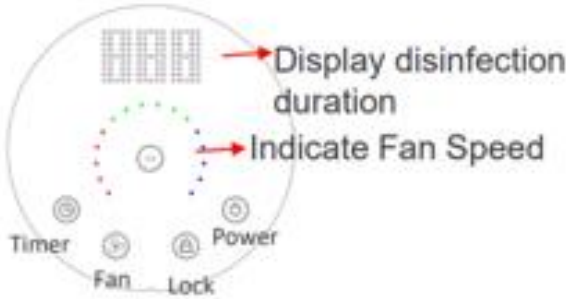
Signify

Mobile Active UV-C purification unit

Product Overview / key features – preliminary data for UKI

WORK IN PROGRESS

User friendly interface



Touch button →15K press times

- Timer: 30mins / 60mins / 120mins / oN
- Fan: three step fan speed

Easy maintenance

Indicator for lamp maintenance	Yes
Error code with lamp replacement info	Yes

Key specifications

- UV 254nm lamp 2*18W PL-L & 4*18W PL-L ,lifetime 9000hrs.
- Class I / 220-240V, 50/60Hz
- Application room size: Max 40m^3 – 80m^3
- Size: 360(W) x 360(D) x 780(H)mm
- Function: on/off, 3 fan speed, lock, timer, UVC lamp failure indicator
- 1yr warranty

signify

UV resistant design

- Housing – Anti UV Plastic
- Extra supportive metal structure inside disinfection chamber

Strong air disinfection effect

Disinfection for bacteria lab test	99.9% in 20 m3
Disinfection for bacteria field test	90% in 80 m3

Disinfection duration to achieve above two:

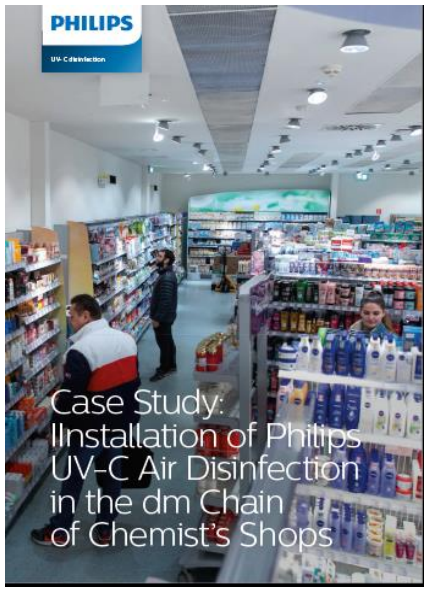
- 2hrs for 4 lamp version
- 4hrs for 2 lamp version

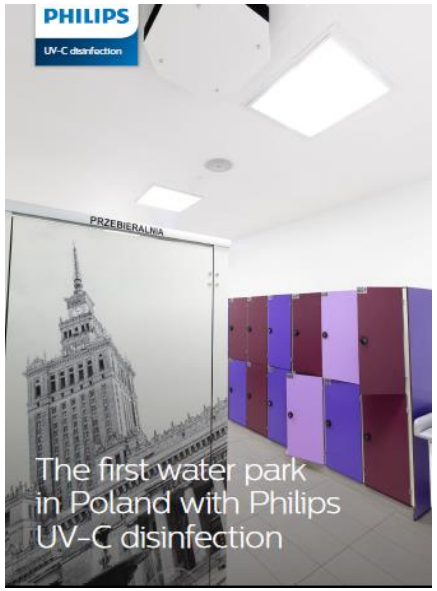
Safe use

UVC Leakage	< 0.2µw/cm2
Ozone free	Yes
Safety start	Yes

signify

European UVC Case studies





- CASE_STUDY_UV-Cupperair_DM_Slovakia_LR.pdf
- CASE_STUDY_UV-Cupperair_EDEKA_Germany_LR.pdf
- CASE_STUDY_UVCupperair_Reims_Sonepar_EN_LR.pdf
- CASE_STUDY_UV-Cupperairbatten_PARK-WODNY_Poland_EN_LR.pdf
- LR_R-2020849 Case Study UV-C Philips Stadion_ENG_v3.pdf
- UV_C_CASE_STUDY_'t Klaslokaal_recreationalsports_final.pdf

signify

Summary

- UV-C Lighting is as versatile as general lighting
- Solutions for all commercial applications
- Part of your disinfection toolkit – providing an additional layer of safety your staff and customers
- Safety and understanding are critical in order to deliver a compliant and effective scheme – working with credible / trusted partner is key.


signify