

/// CODE 3®



PATIENT COMPARTMENT LIGHT
powered by **vital vio**

Always On, Always Protected

Bacteria Killing Patient Compartment Light

Keeping the patient area of an ambulance clean for each and every patient is critical to keeping the ambulance road ready. Unfortunately, because of the fast-paced nature of the job, and the unexpectedness of each call, bacteria can spread throughout the patient compartment quite easily and frequently. Each time a new person enters the ambulance, new bacteria is introduced and deposited, leading to constant build-up of bacteria on surfaces, especially on high-touch surfaces.



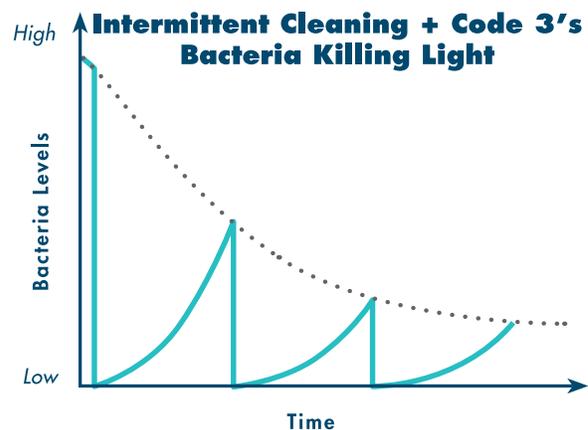
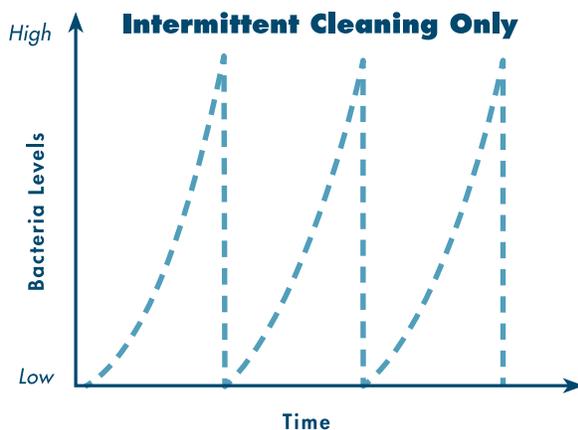
Between focusing on the job at hand or traveling to the next call, the patient compartment area of the ambulance may not be entirely disinfected; sometimes spots or areas with harmful bacteria can be missed. Current cleaning methods are found to be inefficient and rarely, if ever, remove 100 percent of the germs on surfaces. Because of this inefficiency, it is important to continuously decrease the amount of bacteria in the vehicle to prevent excessive growth throughout the cabin.

Code 3's Patient Compartment Light powered by Vital Vio's VioSafe™ Technology provides continuous disinfection of bacteria on objects and surfaces, while providing safe illumination with its precisely engineered wavelengths of visible light.

With Code 3's Patient Compartment Light powered by Vital Vio, continuous disinfection is possible. During calls, in-between calls, or even back at the station, the Patient Compartment Light powered by Vital Vio™ is continuously working to disinfect and protect all areas that the light is touching.

According to the Centers for Disease Control and Prevention (CDC), antibiotic-resistant bacteria infections are associated with two million illnesses and 23,000 deaths in the United States each year. Bacteria lives on surfaces for days, weeks, and in some cases months, they are invisible, can grow exponentially, and are often dangerous to the health of workers and patients. Because current cleaning methods are not continuous, there are large periods of time when workers and patients are susceptible to coming in contact with potentially dangerous germs.

With the use of Code 3's Patient Compartment Light powered by Vital Vio, ambulance providers can dramatically reduce the risk posed to their workers and patients of environmental, or surface contamination by microorganisms. Vital Vio provides continuous disinfection of bacteria on high-touch surfaces and is safe for continuous use around humans.





Safe



Reduce Illnesses



Great Lighting



No Down Time

Safe and Certified

Code 3 utilizes Vital Vio's VioSafe™ technology which is safe for humans and animals. The technology has been tested for continuous and unrestricted use around humans. Vital Vio's technology is designed to meet IEC 62471 standards. The IEC 62471 standard gives guidance for evaluating the photobiological safety of lamps, lamp systems and defines exposure limits.

User benefits

- Utilizes proven VioSafe™ technology to provide continuous disinfection of bacteria on high-touch surfaces in interior environments
- Requires no special downtime for cleaning as opposed to ultraviolet light methods, making it safe for workers to perform normal course operations while in use
- Dramatically reduces contamination while providing white light illumination safe for humans and animals that is proven to kill germs
- Successfully reduces the presence of harmful bacteria and decreases costs associated with illnesses, contamination of goods, and regulatory fines
- Easily installs and integrates with existing overhead fixtures and meets Triple-K compliancy

Vehicle Usage

- Emergency medical services (EMS) vehicles
- Search and rescue vehicles
- Police vehicles
- Military vehicles
- Coroner vehicles
- Prisoner transport vans
- Crime scene vehicles



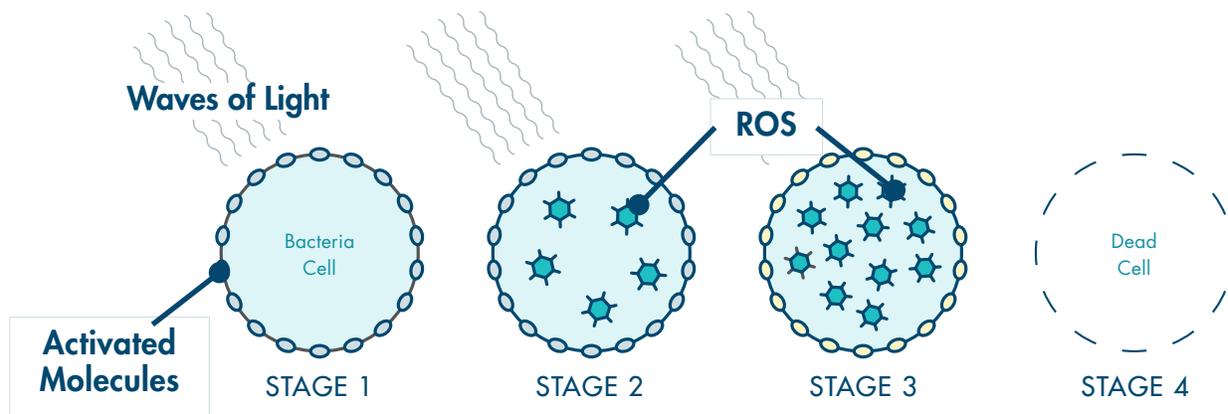
How Does It Work?



The Science

Code 3's Patient Compartment Light powered by Vital Vio Technology provides surface disinfection in addition to providing white light to illuminate any emergency service response vehicle workspace.

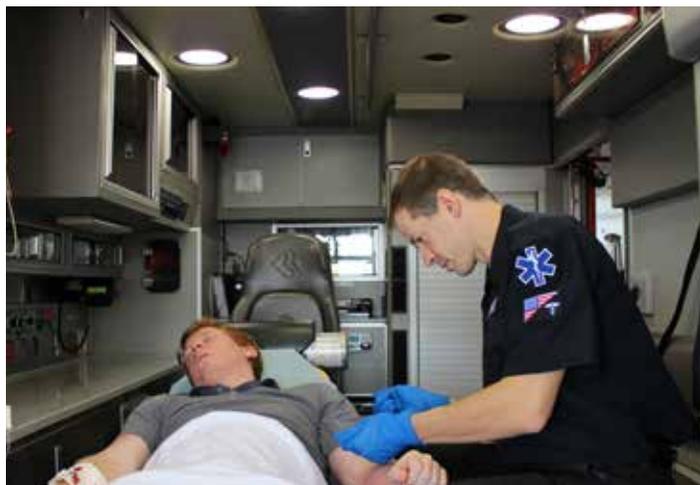
Vital Vio's precise spectrum of visible light works to disinfect by initiating a photo-activation of porphyrin molecules found in bacteria, yeast, and fungi. This photo-activation leads to the production of reactive oxygen species (ROS). In high doses, ROS causes irreparable damage to the cellular structure, which leads to bacterial cell death. These activated molecules are unique to bacteria, yeast, and fungi cells, and are not found in human or animal cells, making this spectrum of light safe to be used continuously around humans and animals.



Safety Testing

Vital Vio's technology meets all criteria for the IEC 62471 photobiological test and falls in the exempt group (RG 0), "where no optical hazard is considered reasonably foreseeable, even for continuous, unrestricted use." This refers to long-term, continuous exposure to Vital Vio's VioSafe™ visible light disinfection technology. Vital Vio's disinfecting wavelengths are approximately 405 nanometers, this wavelength targets a specific type of porphyrin molecule that is unique to bacteria, mold, and fungi cells and is not present in humans, plants or animals.

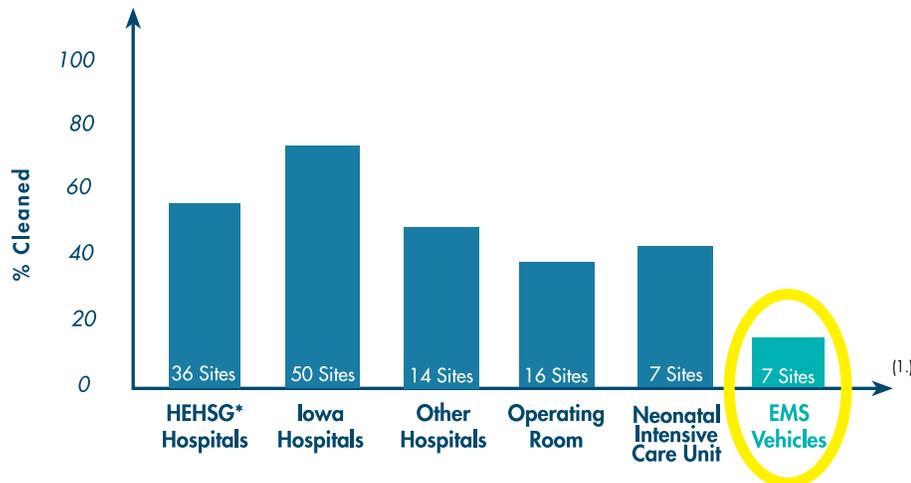
The VioSafe technology is safe in part because it is in the visible light spectrum and not in the ultraviolet (UV) range. Additionally, the disinfecting wavelengths fall outside the blue light zone that is generally considered harmful.



What are the Effects of Disinfecting?

Terminal Cleaning

According to the American Journal of Infection Control, extensive covert studies have uniformly confirmed that opportunities for improving environmental cleaning can be identified in many health care settings as exhibited below. These studies took place in a wide range of health care settings in which a systematic evaluation of environmental cleaning was performed using the same fluorescent marking system. Terminal cleaning is the thorough environmental cleaning performed after the area has been used.

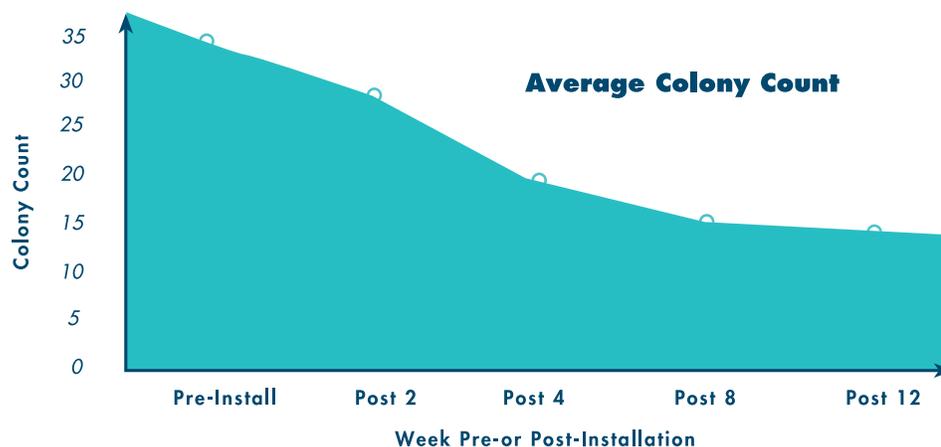


* Healthcare Environmental Hygiene Study Group.
1. A. Varona-Barquin et al. (2013, May). Methods for assessing the adequacy of practice and improving room disinfection. Retrieved from [http://www.ajicjournal.org/article/S0196-6553\(13\)00056-4/fulltext](http://www.ajicjournal.org/article/S0196-6553(13)00056-4/fulltext).

Continuous Cleaning

Vital Vio, a leader in clinical research, has proven the efficacy of the VioSafe™ technology in an active trauma room in a hospital's emergency department. This study showed post-install sample colony counts were statistically significantly lower than pre-install colony counts.

As early as two weeks after installation, the samples collected from the trauma room showed reductions in overall bacteria colony counts. In just eight weeks after installation, statistically significant reductions were achieved. All post-install samplings showed lower average colony counts than in all pre-install samplings.



What Germs Does It Kill?

Visible Light Disinfection Efficacy List

Bacteria

Gram Positive

- Staphylococcus aureus (incl. MRSA)
- Clostridium perfringens
- Clostridium difficile
- Enterococcus faecalis
- Staphylococcus epidermidis
- Staphylococcus hyicus
- Streptococcus pyogenes
- Listeria monocytogenes
- Bacillus cereus
- Mycobacterium terrae
- Lactococcus lactis
- Lactobacillus plantarum
- Bacillus circulans
- Streptococcus thermophilus

Gram Negative

- Acinetobacter baumannii
- Pseudomonas aeruginosa
- Klebsiella pneumoniae
- Proteus vulgaris
- Escherichia coli
- Salmonella enteritidis
- Shigella sonnei
- Serratia marcescens
- Salmonella typhimurium

Bacteria Endospores

- Bacillus cereus
- Clostridium difficile

Yeast and Filamentous Fungi

- Aspergillus niger
- Candida albicans
- Saccharomyces cerevisiae

Results of Exposure Over Time

Vital Vio conducted a qualitative study to show the effects of Code 3's Patient Compartment Lights, powered by Vital Vio versus traditional LED patient compartment lights. Methicillin-resistant staphylococcus aureus (MRSA) were grown, swabbed onto glass slides and allowed to dry. Half the slides were placed under Code 3's traditional patient compartment lights while half were placed under Code 3's Patient Compartment Light powered by Vital Vio and left exposed for 72 hours. As seen through a visual comparison, the overall bacterial growth was much less on slides exposed to the continuous disinfecting technology used in Code 3's Patient Compartment Lights powered by Vital Vio technology.

A visual comparison between the overall amount of bacterial growth on each plate.

Traditional LED Light Exposure



Code 3's Patient Compartment Light powered by Vital Vio Exposure



*Other studies in controlled environments have shown up to a 99% reduction in germs after 24 hours. Results will vary in active trauma areas as new germs are constantly introduced and transferred throughout vehicles.

Up to 99% Reduction in Germs, After 24 Hours!*

Product Information

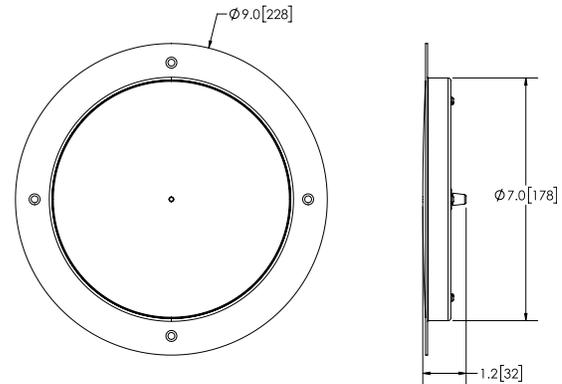
The Code 3 Patient Compartment Light powered by Vital Vio can be easily installed or retrofitted into existing industry standard cutouts.

Design Features

- VioSafe™ technology
- Clear polycarbonate lens
- Fits in an industry standard 7.0" cutout
- 48 LEDs
- Bright and dim mode available

Specifications

- 9.0" diameter (229 mm) x 0.5" depth (13 mm)
- Effective lumens: 750 bright mode and 250 dim mode
- 12-24VDC
- KKK-A-1822F certified and AMD compliant
- Internationally certified by IEC and UL
- 5-year warranty



Product Installation

- PCL-LED-VV; 9.0" Patient Compartment Light, with Vital Vio Technology, bare leads
- PCL-LED-VV-P; 9.0" Patient Compartment Light, with Vital Vio Technology, with Deutsch connector
- WPPLUG1; standard 3-pin Deutsch connector

These lights are designed for overhead installation in active environments and although the disinfection capability is both distance and dosage dependent, Vital Vio's technology is disinfecting every area of a space at all times, just at different rates based on distance. It is recommended that all existing patient compartment lighting in an ambulance be replaced with Code 3's Patient Compartment Light powered by Vital Vio for optimum disinfection efficacy. Typical floor-to-ceiling heights for the products are most appropriate for spaces with a ceiling height under 12 feet.



Lights On, Germs Out!

Code 3,® Inc. engineers, manufactures and markets a complete line of lighting and sound-based warning products used by professionals in the police and fire markets. Since its inception in 1974, Code 3's primary goal is to design products that enhance customer safety, including law enforcement officers, firemen and emergency medical technicians (EMT) personnel.

Based in St. Louis, Missouri, Code 3 employs approximately 200 employees dedicated to finding solutions for the varying needs of its customers.

We distribute products to over 70 countries through a network of manufacturer's representatives and distributors serving the public safety market. Our ISO 9001 certified facility uses Lean Six Sigma manufacturing processes and houses a world-class testing facility.

Our employees are dedicated to providing innovative warning products and exceptional customer satisfaction. We are grateful for the opportunity to earn your business, and look forward to hearing your feedback and suggestions. Visit our website, Facebook, or YouTube for up-to-date product news and application videos.



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