

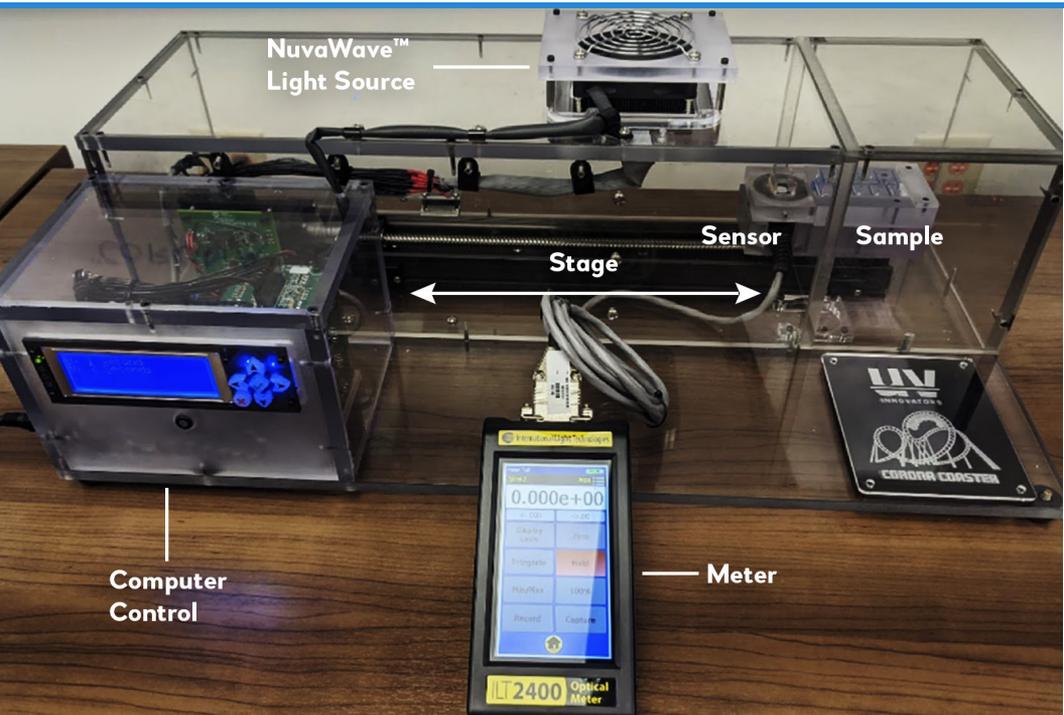


Laboratory Research Summary NuvaWaveTM Handheld Device



Independent laboratory testing has shown NuvaWave Instant UV device has safely and effectively reduced bacteria and viruses.

NuvaWave™ Robotic Test Fixture “Corona Coaster”



The “Corona Coaster” is our robotic NuvaWave tester that automatically moves the pathogen under the UVC light at a specific rate and has sensors to measure the dose of UVC that the pathogen was exposed to. Also, we can describe our procedure for pathogen reduction using ASTM E3135 standard procedure without soil.

Acinetobacter baumannii

Bacteria Reduction

Laboratory Name: EMSL Analytic, Inc.
 Laboratory Location: Morrisville, NC
 Date: September 20, 2020
 Device Tested: NuvaWave Instant UV Handheld
 Report Number: 292009030

Objective

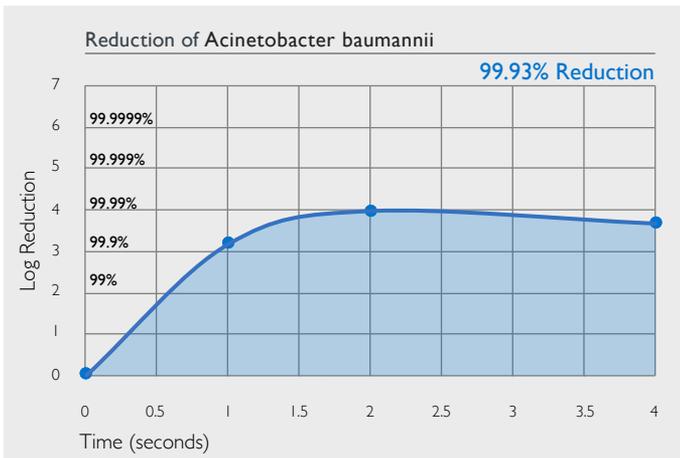
To evaluate the efficacy and the dose response of NuvaWave Instant UV handheld device in reducing *Acinetobacter baumannii* bacteria on surfaces.

Methodology

Utilizing ASTM E3135 standard practice to evaluate the ultraviolet germicidal irradiation designed to kill/inactivate microorganisms deposited on inanimate carriers, such as steel or glass. The carriers were inserted into a computer controlled robotic NuvaWave test device (12 mW/cm²) irradiated the pathogen carriers at a separation distance of 2 inches for a defined period of time. The dose and time for each period was recorded. The irradiated pathogens were compared to a non-irradiated control group to determine the amount of inactivation.

Summary of Results

The NuvaWave handheld device reduced 99.93% of *Acinetobacter baumannii* after one second of exposure.



Escherichia coli (E. coli)

Bacteria Reduction

Laboratory Name: EMSL Analytic, Inc.
 Laboratory Location: Morrisville, NC
 Date: October 19, 2020
 Device Tested: NuvaWave Instant UV Handheld
 Report Number: 292010682

Objective

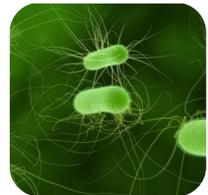
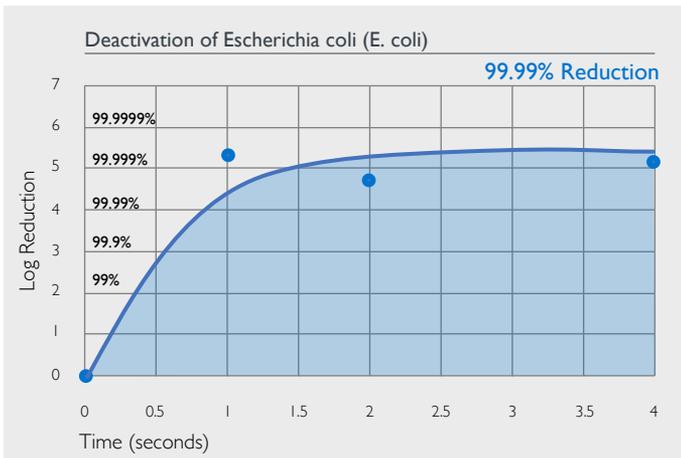
To evaluate the efficacy and the dose response of NuvaWave Instant UV handheld device in reducing Escherichia coli (E. coli) on surfaces.

Methodology

Utilizing ASTM E3135 standard practice to evaluate the ultraviolet germicidal irradiation designed to kill/inactivate microorganisms deposited on inanimate carriers, such as steel or glass. The carriers were inserted into a computer controlled robotic NuvaWave test device (112 mW/cm²) irradiated the pathogen carriers at a separation distance of 2 inches for a defined period of time. The dose and time for each period was recorded. The irradiated pathogens were compared to a non-irradiated control group to determine the amount of inactivation.

Summary of Results

The NuvaWave handheld device deactivated 99.99% of Escherichia coli (E. coli) after one second of exposure.



Enterococcus faecalis

Bacteria Reduction

Laboratory Name: EMSL Analytic, Inc.
 Laboratory Location: Morrisville, NC
 Date: August 27, 2020
 Device Tested: NuvaWave Instant UV Handheld
 Report Number: 292008829

Objective

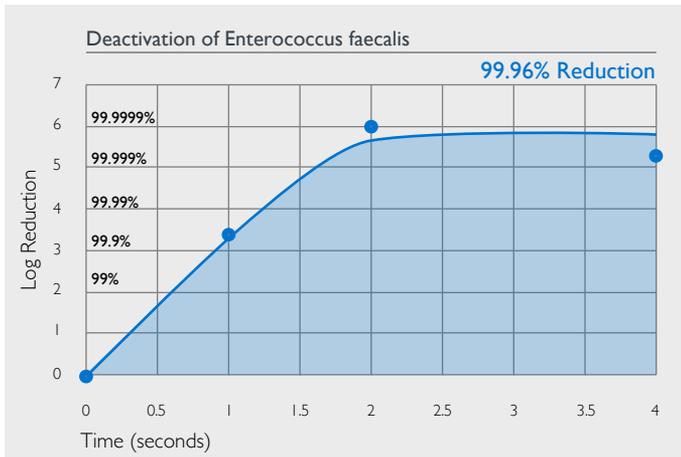
To evaluate the efficacy and the dose response of NuvaWave Instant UV handheld device in reducing Enterococcus faecalis on surfaces.

Methodology

Utilizing ASTM E3135 standard practice to evaluate the ultraviolet germicidal irradiation designed to kill/inactivate microorganisms deposited on inanimate carriers, such as steel or glass. The carriers were inserted into a computer controlled robotic NuvaWave test device (12 mW/cm²) irradiated the pathogen carriers at a separation distance of 2 inches for a defined period of time. The dose and time for each period was recorded. The irradiated pathogens were compared to a non-irradiated control group to determine the amount of inactivation.

Summary of Results

The NuvaWave handheld device deactivated 99.96% of Enterococcus faecalis after one second of exposure.



Klebsiella pneumoniae

Bacteria Reduction

Laboratory Name: EMSL Analytic, Inc.
 Laboratory Location: Morrisville, NC
 Date: October 6, 2020
 Device Tested: NuvaWave Instant UV Handheld
 Report Number: 292010314

Objective

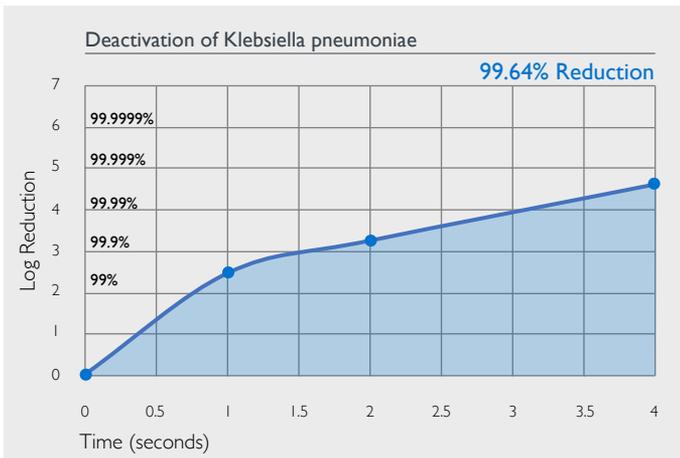
To evaluate the efficacy and the dose response of NuvaWave Instant UV handheld device in reducing *Klebsiella pneumoniae* on surfaces.

Methodology

Utilizing ASTM E3135 standard practice to evaluate the ultraviolet germicidal irradiation designed to kill/inactivate microorganisms deposited on inanimate carriers, such as steel or glass. The carriers were inserted into a computer controlled robotic NuvaWave test device (12 mW/cm²) irradiated the pathogen carriers at a separation distance of 2 inches for a defined period of time. The dose and time for each period was recorded. The irradiated pathogens were compared to a non-irradiated control group to determine the amount of inactivation.

Summary of Results

The NuvaWave handheld device deactivated 99.64% of *Klebsiella pneumoniae* after one second of exposure.



Methicillin-Resistant *Staphylococcus aureus* (MRSA) Bacteria Reduction

Laboratory Name: EMSL Analytic, Inc.
 Laboratory Location: Morrisville, NC
 Date: July 21, 2020
 Device Tested: NuvaWave Instant UV Handheld
 Report Number: 292007488

Objective

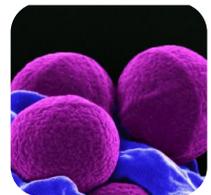
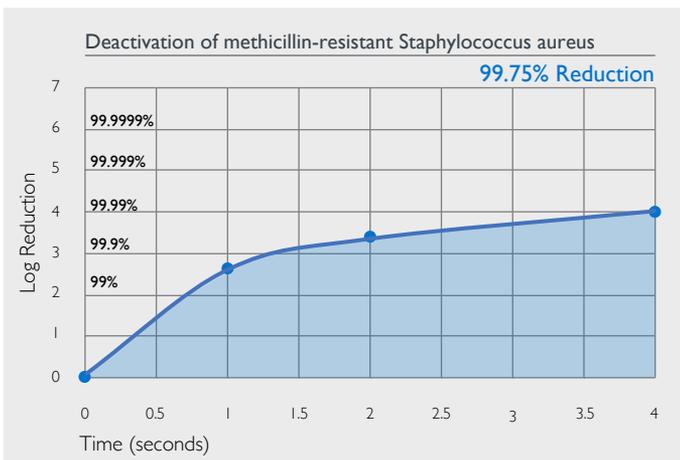
To evaluate the efficacy and the dose response of NuvaWave Instant UV handheld device in reducing methicillin-resistant *Staphylococcus aureus* bacteria on surfaces.

Methodology

Utilizing ASTM E3135 standard practice to evaluate the ultraviolet germicidal irradiation designed to kill/inactivate microorganisms deposited on inanimate carriers, such as steel or glass. The carriers were inserted into a computer controlled robotic NuvaWave test device (12 mW/cm²) irradiated the pathogen carriers at a separation distance of 2 inches for a defined period of time. The dose and time for each period was recorded. The irradiated pathogens were compared to a non-irradiated control group to determine the amount of inactivation.

Summary of Results

The NuvaWave handheld device deactivated 99.75% of methicillin-resistant *Staphylococcus aureus* after one second of exposure.



Pseudomonas aeruginosa

Bacteria Reduction

Laboratory Name: EMSL Analytic, Inc.
 Laboratory Location: Morrisville, NC
 Date: July 22, 2020
 Device Tested: NuvaWave Instant UV Handheld
 Report Number: 292007449

Objective

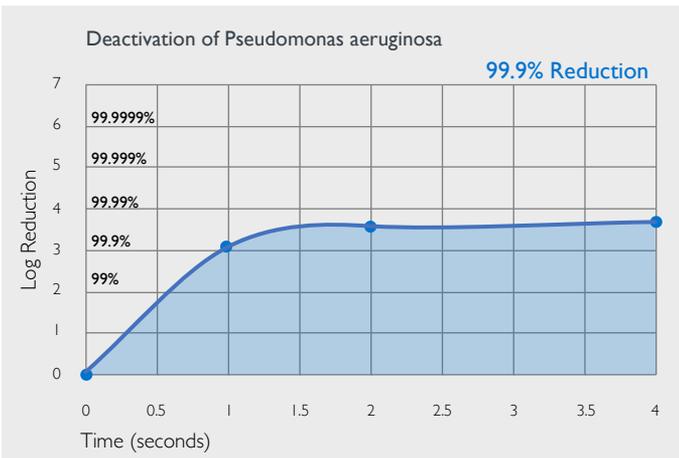
To evaluate the efficacy and the dose response of NuvaWave Instant UV handheld device in reducing *Pseudomonas aeruginosa* bacteria on surfaces.

Methodology

Utilizing ASTM E3135 standard practice to evaluate the ultraviolet germicidal irradiation designed to kill/inactivate microorganisms deposited on inanimate carriers, such as steel or glass. The carriers were inserted into a computer controlled robotic NuvaWave test device (12 mW/cm²) irradiated the pathogen carriers at a separation distance of 2 inches for a defined period of time. The dose and time for each period was recorded. The irradiated pathogens were compared to a non-irradiated control group to determine the amount of inactivation.

Summary of Results

The NuvaWave handheld device deactivated 99.9% of *Pseudomonas aeruginosa* after one second of exposure.



Salmonella typhimurium

Bacteria Reduction

Laboratory Name: EMSL Analytic, Inc.
 Laboratory Location: Morrisville, NC
 Date: November 5, 2020
 Device Tested: NuvaWave Instant UV Handheld
 Report Number: 292011288

Objective

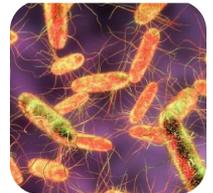
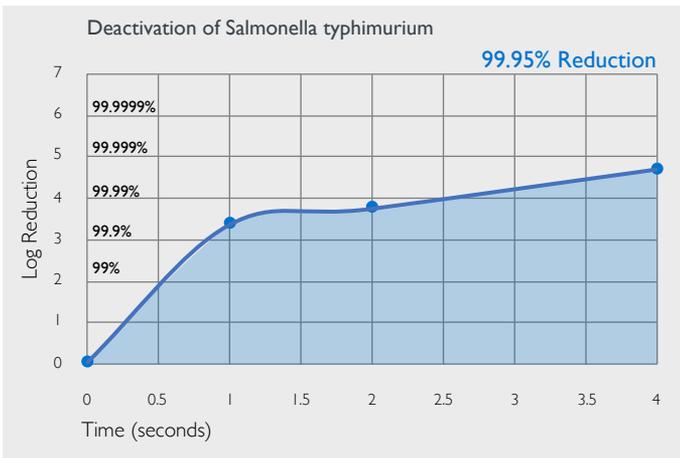
To evaluate the efficacy and the dose response of NuvaWave Instant UV handheld device in reducing Salmonella typhimurium bacteria on surfaces.

Methodology

Utilizing ASTM E3135 standard practice to evaluate the ultraviolet germicidal irradiation designed to kill/inactivate microorganisms deposited on inanimate carriers, such as steel or glass. The carriers were inserted into a computer controlled robotic NuvaWave test device (12 mW/cm²) irradiated the pathogen carriers at a separation distance of 2 inches for a defined period of time. The dose and time for each period was recorded. The irradiated pathogens were compared to a non-irradiated control group to determine the amount of inactivation.

Summary of Results

The NuvaWave handheld device deactivated 99.95% of Salmonella typhimurium after one second of exposure.



SARS-CoV-2 Virus Reduction

Laboratory Name: **Texas Biomedical Research Institute**
 Laboratory Location: **San Antonio, TX**
 Date: **November 18, 2020**
 Device Tested: **NuvaWave Instant UV Handheld**
 Report Number: **WA1111820**

Objective

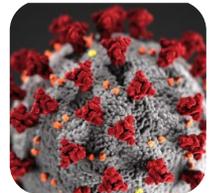
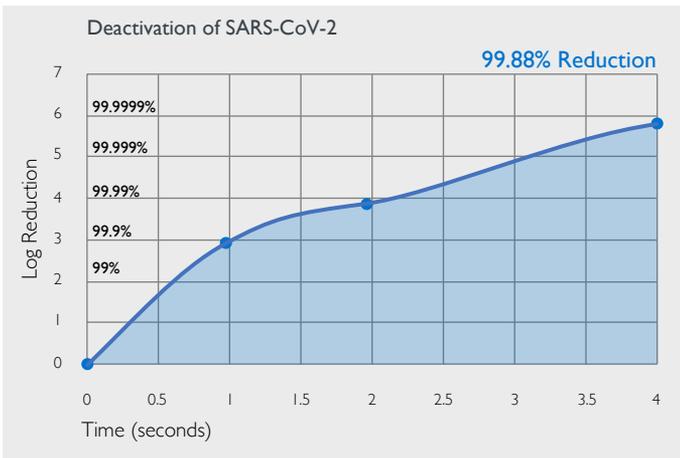
To evaluate the efficacy and the dose response of NuvaWave Instant UV handheld device in reducing the SARS-CoV-2 virus on surfaces.

Methodology

SARS-CoV-2 was dried on a chambered glass slides and introduced in a NuvaWave robotic testing unit. The programed robotic unit facilitated the exposure of pre-determined UVC radiation dose to the virus for 1, 2, 4 and 8 seconds. Post-UVC exposure, virus was recovered and titered by plaque assay in Vero E6 cells.

Summary of Results

The NuvaWave handheld device deactivated 99.88% of SARS-CoV-2 after one second of exposure.



NuvaWave™ Information

Intended Use

NuvaWave Handheld Disinfection Device produces germicidal levels of UVC light for surface disinfection.

When used in the healthcare environment, NuvaWave augments the disinfection of surfaces after manual cleaning. NuvaWave can be used in the elimination of pathogens on high touch surfaces which aids in the prevention of Hospital Acquired Infections (HAI's).



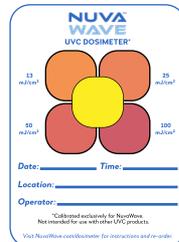
NuvaWave™ Handheld



NuvaWave™ Kit (NW-UVC-100)



NuvaWave™ Kit (Interior)



NuvaWave™ UVC Dosimeter Card

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