Dimer™

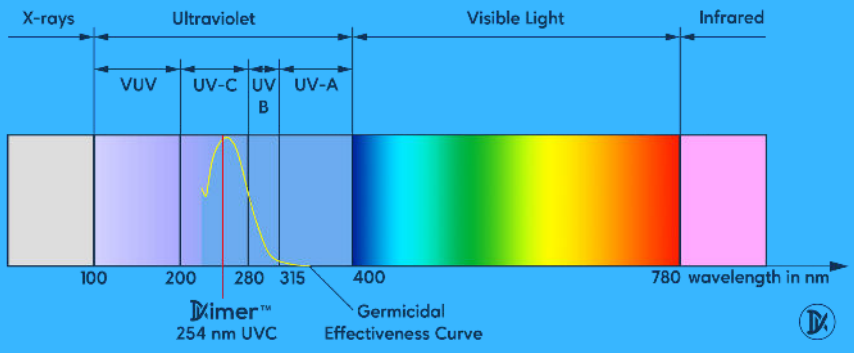
# Understanding the Basics of

## UVC SURFACE DISINFECTION

## What is UVC?

UVC is an extremely germicidal wavelength of light that doesn't naturally penetrate the Earth's atmosphere. 50+ years ago, scientists created UVC lamps to aid in disinfection efforts across many industries, including healthcare, food-processing, HVAC, and more.

UV light is absorbed by the DNA and RNA of microorganisms, which causes 'Dimers' that change the DNA and RNA structure, rendering the microorganisms incapable of replicating.

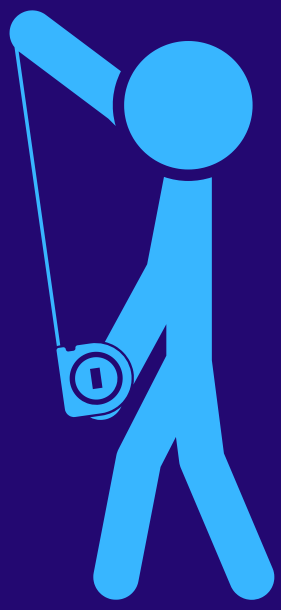



## Distance

The distance from a light source to a target surface is one of the most critical factors in germicidal efficacy.

The dosage of light delivered follows the inverse square law, meaning the germicidal efficacy of UVC light falls off exponentially as the light source is positioned further from the target surface.

**Stationary vertical tower designs attempt to combat the limitation of distance by requiring multiple 'cycles' in multiple positions, typically taking 15 minutes for each cycle.**



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# Line of Sight / Shadowing

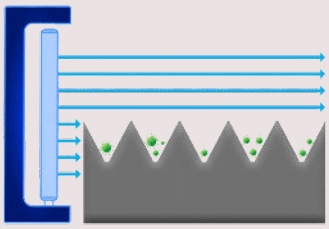
A fundamental aspect of UVC germicidal irradiation is the requirement for direct exposure, or line of sight, between the light source and the target surface.

Any area that UV energy does not directly hit will not be disinfected, as UV does not penetrate through furniture or other objects nor does it reflect off walls.

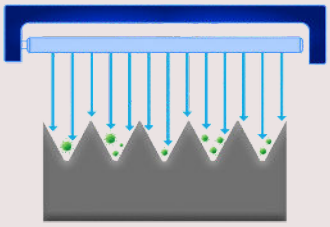
**Stationary vertical tower designs attempt to overcome line-of-sight limitations by requiring multiple positions across a room. This can be nearly impossible with larger spaces, especially those that contain furniture such as chairs, beds, and desks.**

# Canyon Wall Effect

Even the smoothest surface feature microscopic divots. This texture provides pathogens with 'hiding' places from a fixed UV light source by shadowing them from the lamp's line of sight. This phenomenon, known as the 'canyon wall effect', was first discovered by Dimer's very own Dr. Kreitenberg.



Perpendicular Exposure



Parallel Exposure

For illustration purposes only. Not drawn to scale.

# Angle of Incidence

To be most effective, UVC lights must be angled so that the lamps are parallel to the target surface, ensuring perpendicular and complete exposure of all lingering particles.

Horizontal lights are 500x more effective than vertical lamps when targeting horizontal surfaces.