

Case Study: Medium Room Sterilization using UV-Kleen™

Larger areas such as shopping malls, theatres, religious centers, auditoriums, conference halls are high traffic areas for personnel, and the chance of getting sick through virus or bacteria is highly likely. The following case study focuses on sterilizing a 500sqft room using UV-Kleen™ UVK-PRK-300W unit. The setup and the results are shown in the following table:

| Parameters | Values | Values |
|--------------------------------|---|---|
| Dimensions of the room | 20x25x12 ft | 20x25x12 ft |
| Temp and Humidity | 75F(24C) 30% | 85F(29C) 25% |
| Time for 50mJ/cm ² | 56 sec @ 18in 1.27min @ 3ft | 3.20 min @8ft 4.4 min @ 10ft |
| Time for 100mJ/cm ² | 1.19 min @ 18in 3 min @3ft | 6.3 min @ 8ft 8 min @ 10ft |
| Ozone Levels | 3.5ppm in 1.19min @ lamp 1.7ppm in 3 min @ 3ft | 4 ppm in 8 min @ lamp 1.5ppm in 8 min @ 8ft 1.1 ppm in 8 min @ 10ft |

Dosimeter™ and Ozone meter are used to measure the UV-C energy and Ozone ppm at different locations in the room. Dosimeter at 18 inches from the lamp: It took 56 seconds to attain 50mJ/cm² and 1.19 minutes for 100mJ/cm². The Ozone is measured to be 3.5 ppm at 1.19 minutes, which dissipates to 0.05 ppm (FDA approved) in under 1 min.

Dosimeter at 3 ft. from the lamp: It took 1.27 minutes to attain 50mJ/cm² and 3min for 100mJ/cm². The Ozone is measured to be 1.7 ppm at 1.19 minutes, which dissipates to 0.05ppm (FDA approved) in under 1 minute.

Dosimeter at 8 ft. from the lamp: It took 3.20 minutes to attain 50mJ/cm² and 6-7min for 100mJ/cm². The Ozone is measured to be 4.0 ppm at the lamp and 1.5 ppm at 10 ft., which dissipates to 0.05 ppm (FDA approved) in under 1 minute. Dosimeter at 10 ft. from the lamp: It took 3.20 minutes to attain 50mJ/cm² and 6-7min for 100mJ/cm². The Ozone is measured to be 4.0 ppm at the lamp and 1.5 ppm at 10 ft. away from the lamp, which dissipated to 0.05 ppm (FDA approved) in under 1 minute.

From the above test results, it is evident that UV-Kleen™ takes about 4.4 minutes to kill pathogens including coronavirus up to 99.99% when the contaminated area is 10 ft. away from the UV-Kleen™ system.