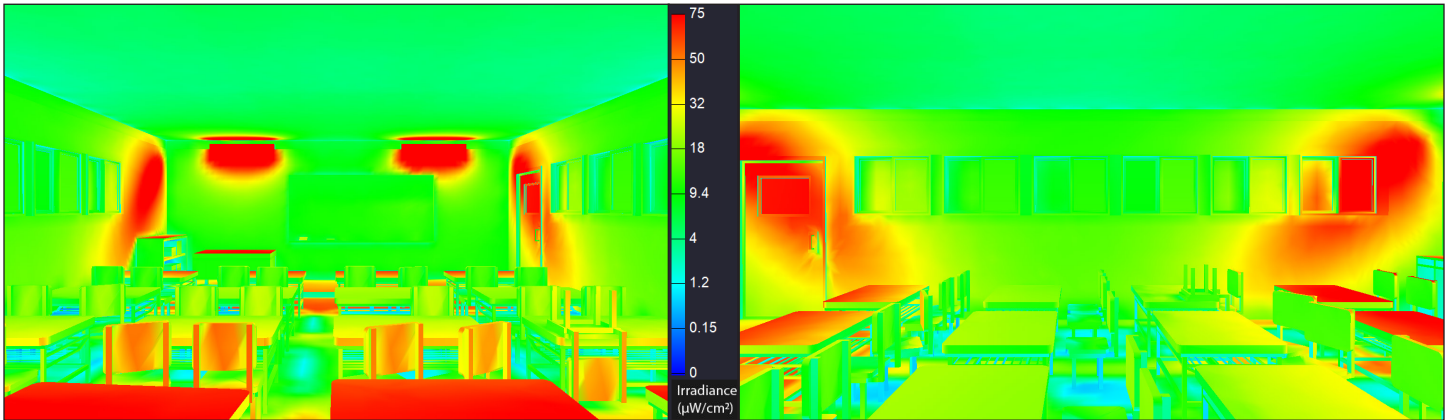


Case Study: Typical Classroom with GCD Direct Germicidal Luminaire

View Towards Front

Side View

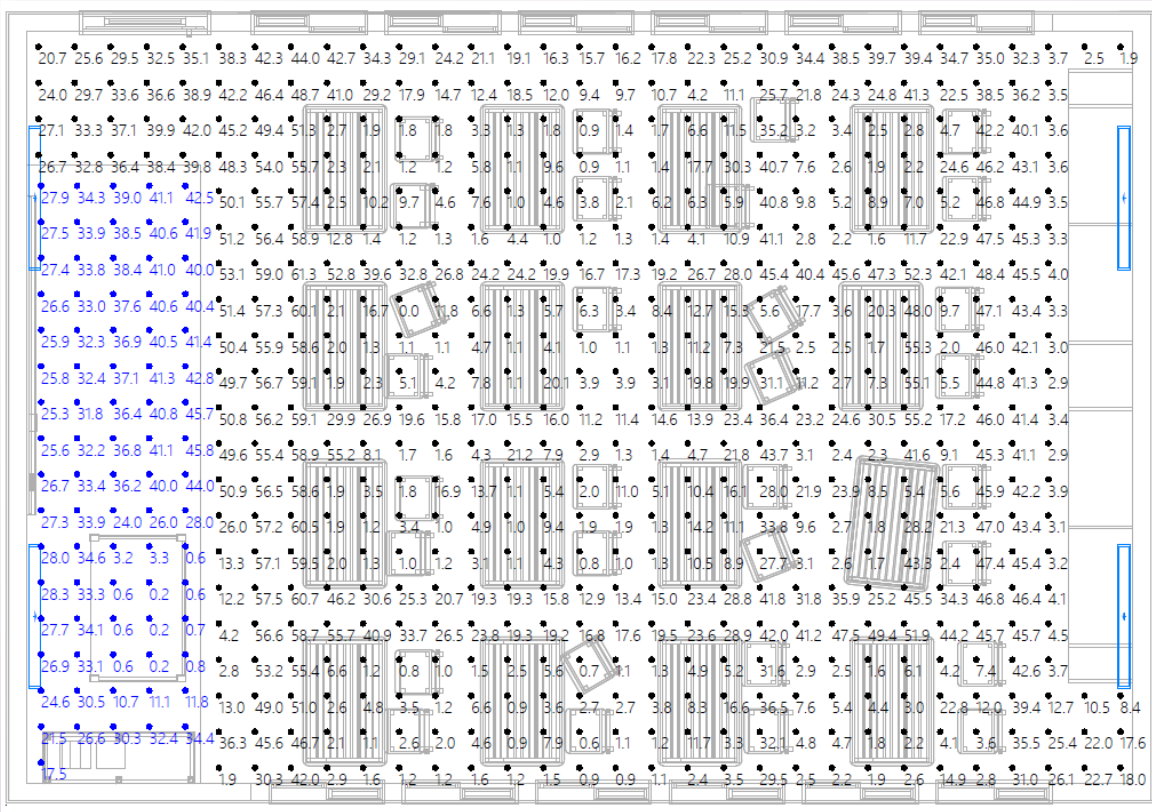


These images, as well as the below point-by-point, show a typical 20' x 30' x 8.5' classroom with four GCD 4 1 36 GUVT8 UVN ODS, two on each side of the room.

Dose needed for 99% reduction of SARS-CoV-2: **5 mJ/cm²**
 Dose needed for 99.9999% reduction of SARS-CoV-2: **22 mJ/cm²**

Point-by-Point Analysis: Overhead View

Dosing guidelines are an estimate based on research by Signify and the National Emerging Infectious Diseases Laboratories at Boston University. Real world conditions, including, but not limited to, temperature, humidity, medium, and particle size can impact the effectiveness of the irradiation dosage. The numbers in this diagram refer to the irradiance in $\mu\text{W}/\text{cm}^2$. Use the table at the bottom of this page to see the approximate time for reduction of SARS-CoV-2. Note: objects in room, such as furniture and equipment, may cause shadowing, reducing the effective dose on some surfaces. As such, UVC should be used in conjunction with other disinfection methods to maximize the elimination of viral and bacterial organisms. See Page 2 for irradiance on desktop and chair surfaces. Note: Because direct exposure to UVC can harm skin and eyes, the GCD is intended to be used in **unoccupied rooms only**. Refer to www.lumenfocus.com/gcd for more information.

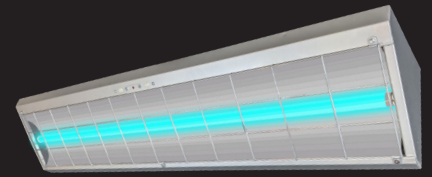


Note: UVFocus products are designed utilizing proven germicidal and antibacterial technology. UVC 254nm products work to deactivate most common viruses (as well as bacteria, molds and yeasts). While these products can be considered disinfecting products, they should be used in conjunction with standard, proper disinfecting cleaning procedures to have the greatest impact for maintaining a clean environment. Successful UV disinfection requires a systems approach taking into account dose, optics and safety relevant to the specific application. Please consult with factory any questions or concerns. Please visit www.uvfocus.com for more information.

| Irradiance ($\mu\text{W}/\text{cm}^2$) | Time to Reach 99% reduction (seconds) | Time to Reach 99% reduction (minutes) | Time to Reach 99.9999% reduction (seconds) | Time to Reach 99.9999% reduction (minutes) |
|--|---------------------------------------|---------------------------------------|--|--|
| 1 | 5000.0 | 83.3 | 22000.0 | 366.7 |
| 15 | 3333.3 | 55.6 | 14666.7 | 244.4 |
| 2 | 2500.0 | 41.7 | 11000.0 | 183.3 |
| 5 | 1000.0 | 16.7 | 4400.0 | 73.3 |
| 10 | 500.0 | 8.3 | 2200.0 | 36.7 |
| 15 | 333.3 | 5.6 | 1466.7 | 24.4 |
| 20 | 250.0 | 4.17 | 1100.0 | 18.3 |
| 25 | 200.0 | 3.33 | 880.0 | 14.7 |
| 30 | 166.7 | 2.78 | 733.3 | 12.2 |
| 35 | 142.9 | 2.38 | 628.6 | 10.5 |

| Irradiance ($\mu\text{W}/\text{cm}^2$) | Time to Reach 99% reduction (seconds) | Time to Reach 99% reduction (minutes) | Time to Reach 99.9999% reduction (seconds) | Time to Reach 99.9999% reduction (minutes) |
|--|---------------------------------------|---------------------------------------|--|--|
| 40 | 125.0 | 2.08 | 550.0 | 9.2 |
| 45 | 111.1 | 1.85 | 488.9 | 8.1 |
| 50 | 100.0 | 1.67 | 440.0 | 7.3 |
| 55 | 90.9 | 1.52 | 400.0 | 6.7 |
| 60 | 83.3 | 1.39 | 366.7 | 6.1 |
| 65 | 76.9 | 1.28 | 338.5 | 5.64 |
| 70 | 71.4 | 1.19 | 314.3 | 5.24 |
| 75 | 66.7 | 1.11 | 293.3 | 4.89 |
| 80 | 62.5 | 1.04 | 275.0 | 4.58 |
| 85 | 58.8 | 0.98 | 258.8 | 4.31 |

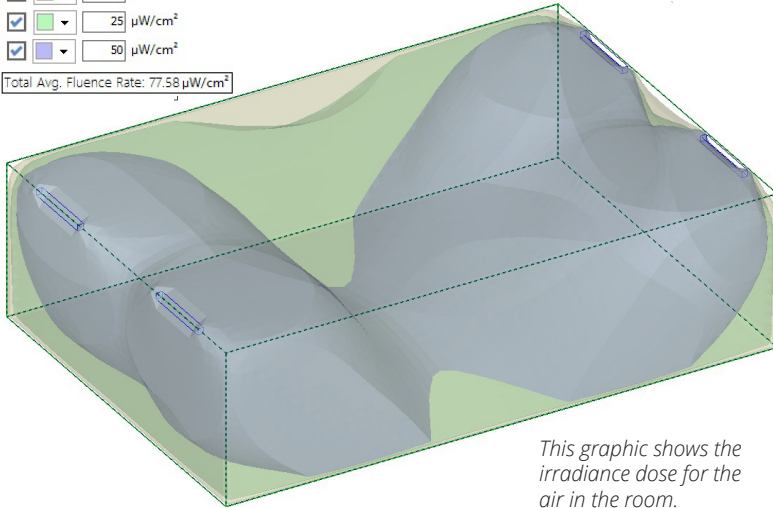
| Irradiance ($\mu\text{W}/\text{cm}^2$) | Time to Reach 99% reduction (seconds) | Time to Reach 99% reduction (minutes) | Time to Reach 99.9999% reduction (seconds) | Time to Reach 99.9999% reduction (minutes) |
|--|---------------------------------------|---------------------------------------|--|--|
| 90 | 55.6 | 0.93 | 244.4 | 4.07 |
| 95 | 52.6 | 0.88 | 231.6 | 3.86 |
| 100 | 50.0 | 0.83 | 220.0 | 3.67 |
| 105 | 47.6 | 0.79 | 209.5 | 3.49 |
| 605 | 8.3 | 0.14 | 36.4 | 0.61 |
| 1105 | 4.5 | 0.08 | 19.9 | 0.33 |
| 1605 | 3.1 | 0.05 | 13.7 | 0.23 |
| 2105 | 2.4 | 0.04 | 10.5 | 0.17 |
| 2605 | 1.9 | 0.03 | 8.4 | 0.14 |
| 3105 | 1.6 | 0.03 | 7.1 | 0.12 |



Case Study: Typical Classroom with GCD Direct Germicidal Luminaire

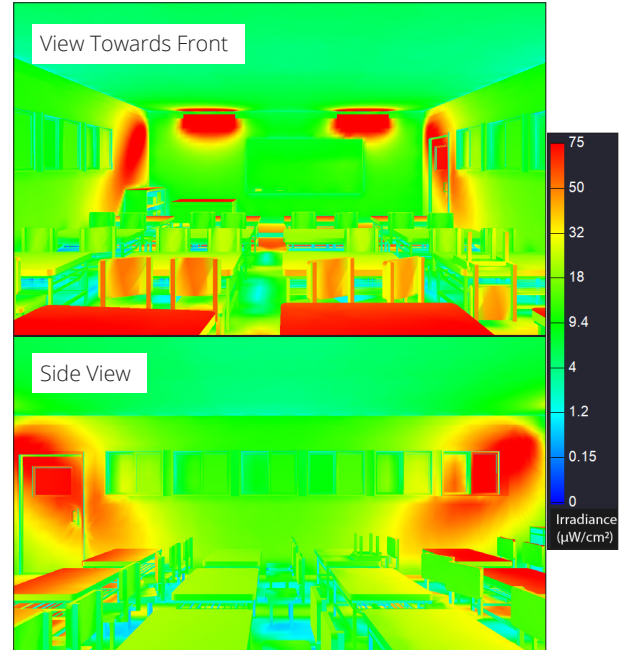
Iso-Irradiance Volumes

- 5 $\mu\text{W}/\text{cm}^2$
 - 25 $\mu\text{W}/\text{cm}^2$
 - 50 $\mu\text{W}/\text{cm}^2$
- Total Avg. Fluence Rate: 77.58 $\mu\text{W}/\text{cm}^2$

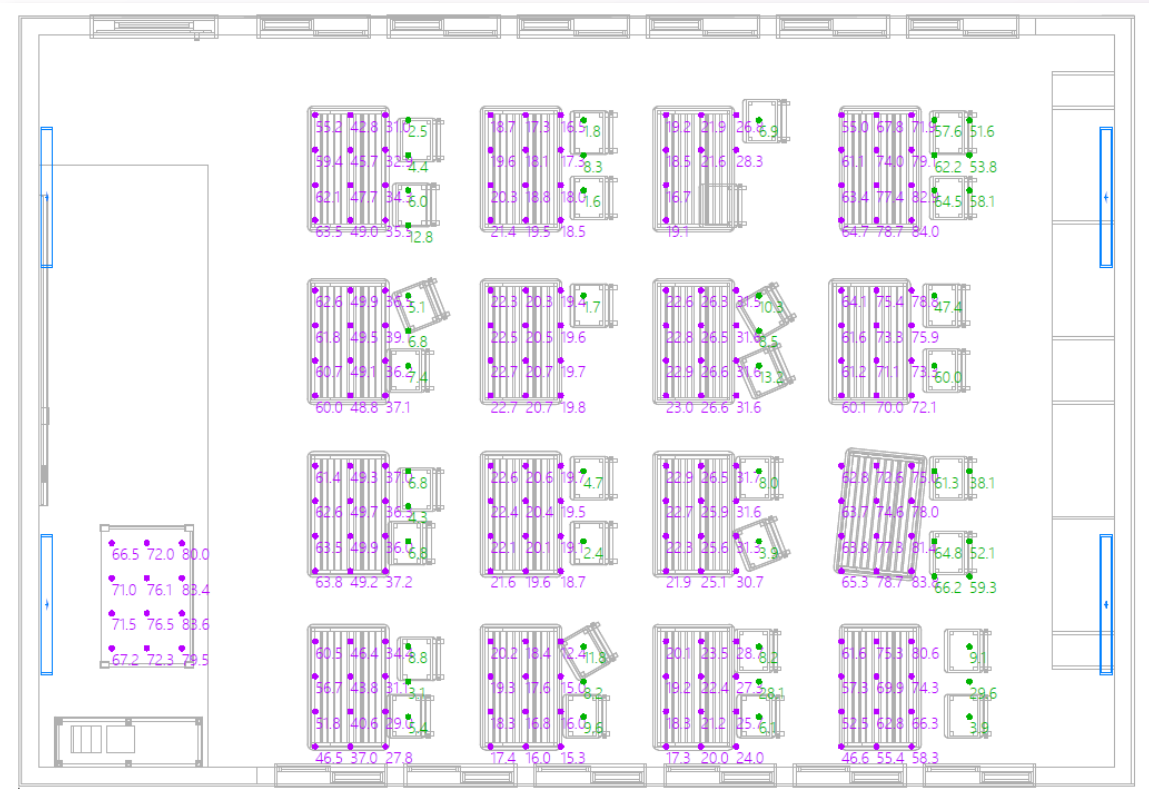


This graphic shows the irradiance dose for the air in the room.

Dose needed for 99% reduction of SARS-CoV-2: **5 mJ/cm²**
 Dose needed for 99.9999% reduction of SARS-CoV-2: **22 mJ/cm²**



Point-by-Point Analysis: Overhead View - Desktops and Surfaces



This graphic shows the irradiance from the four GCD units on the surface of the desktops and chairs in the same classroom. The numbers in this diagram refer to the irradiance in $\mu\text{W}/\text{cm}^2$. Use the table at the bottom of this page to see the approximate time for reduction of SARS-CoV-2.

| Irradiance ($\mu\text{W}/\text{cm}^2$) | Time to Reach 99% reduction (seconds) | Time to Reach 99% reduction (minutes) | Time to Reach 99.9999% reduction (seconds) | Time to Reach 99.9999% reduction (minutes) |
|--|---------------------------------------|---------------------------------------|--|--|
| 1 | 5000.0 | 83.3 | 22000.0 | 366.7 |
| 1.5 | 3333.3 | 55.6 | 14666.7 | 244.4 |
| 2 | 2500.0 | 41.7 | 11000.0 | 183.3 |
| 5 | 1000.0 | 16.7 | 4400.0 | 73.3 |
| 10 | 500.0 | 8.3 | 2200.0 | 36.7 |
| 15 | 333.3 | 5.6 | 1466.7 | 24.4 |
| 20 | 250.0 | 4.17 | 1100.0 | 18.3 |
| 25 | 200.0 | 3.33 | 880.0 | 14.7 |
| 30 | 166.7 | 2.78 | 733.3 | 12.2 |
| 35 | 142.9 | 2.38 | 628.6 | 10.5 |

| Irradiance ($\mu\text{W}/\text{cm}^2$) | Time to Reach 99% reduction (seconds) | Time to Reach 99% reduction (minutes) | Time to Reach 99.9999% reduction (seconds) | Time to Reach 99.9999% reduction (minutes) |
|--|---------------------------------------|---------------------------------------|--|--|
| 40 | 125.0 | 2.08 | 550.0 | 9.2 |
| 45 | 111.1 | 1.85 | 488.9 | 8.1 |
| 50 | 100.0 | 1.67 | 440.0 | 7.3 |
| 55 | 90.9 | 1.52 | 400.0 | 6.7 |
| 60 | 83.3 | 1.39 | 366.7 | 6.1 |
| 65 | 76.9 | 1.28 | 338.5 | 5.64 |
| 70 | 71.4 | 1.19 | 314.3 | 5.24 |
| 75 | 66.7 | 1.11 | 293.3 | 4.89 |
| 80 | 62.5 | 1.04 | 275.0 | 4.58 |
| 85 | 58.8 | 0.98 | 258.8 | 4.31 |

| Irradiance ($\mu\text{W}/\text{cm}^2$) | Time to Reach 99% reduction (seconds) | Time to Reach 99% reduction (minutes) | Time to Reach 99.9999% reduction (seconds) | Time to Reach 99.9999% reduction (minutes) |
|--|---------------------------------------|---------------------------------------|--|--|
| 90 | 55.6 | 0.93 | 244.4 | 4.07 |
| 95 | 52.6 | 0.88 | 231.6 | 3.86 |
| 100 | 50.0 | 0.83 | 220.0 | 3.67 |
| 105 | 47.6 | 0.79 | 209.5 | 3.49 |
| 605 | 8.3 | 0.14 | 36.4 | 0.61 |
| 1105 | 4.5 | 0.08 | 19.9 | 0.33 |
| 1605 | 3.1 | 0.05 | 13.7 | 0.23 |
| 2105 | 2.4 | 0.04 | 10.5 | 0.17 |
| 2605 | 1.9 | 0.03 | 8.4 | 0.14 |
| 3105 | 1.6 | 0.03 | 7.1 | 0.12 |