Illuminance Uniformity from Measured Points

Average, minimum and maximum illuminance and the uniformity ratios from up to nine measured grid points of a lighting survey.

Method: Lighting survey statistics; Grid measurement of illuminance

Input parameters

Unit system: SI

Parameter	Value	Unit
Point 1	520.00	lx
Point 2	480.00	lx
Point 3	610.00	lx
Point 4	450.00	lx
Point 5	560.00	lx
Point 6 (0 = not measured)	390.00	lx
Point 7 (0 = not measured)	0	lx
Point 8 (0 = not measured)	0	lx
Point 9 (0 = not measured)	0	lx

Calculated results

Parameter	Value	Unit
Points used	6.0000	
Average illuminance	501.67	lx
Minimum	390.00	lx
Maximum	610.00	lx
Uniformity E_min/Ē	77.741	%
Diversity E_min/E_max	63.934	%

Notes for this case

- Readings of zero are treated as not taken. Measure on a regular grid over the task area at working-plane height; guidance commonly asks for U_0 of about 0.4–0.7 depending on the task.

Formula and method

$$\bar{E} = \frac{1}{n}\sum E_i, \quad U_0 = \frac{E_{min}}{\bar{E}}, \quad U_d = \frac{E_{min}}{E_{max}}$$

Variables

E_1	Point 1	lx
E_2	Point 2	lx
E_3	Point 3	lx
E_4	Point 4	lx
E_5	Point 5	lx
E_6	Point 6 (0 = not measured)	lx
E_7	Point 7 (0 = not measured)	lx
E_8	Point 8 (0 = not measured)	lx
E_9	Point 9 (0 = not measured)	lx

n	Points used	-
$\bar{E}$	Average illuminance	lx
E_{min}	Minimum	lx
E_{max}	Maximum	lx
U_0	Uniformity E_min/Ē	-
U_d	Diversity E_min/E_max	-

Method and standards

Uniformity.

Assumptions and limits

- Equal-area grid points.

References

Lighting survey statistics, Grid measurement of illuminance

Report details

Report reference	FCC-6VZ5-PCMG (the same inputs always give the same reference)
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Calculator	Illuminance Uniformity from Measured Points
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Software release	FireCAD Calc, release of 22 November 2026
Release checks	3 reference cases of this calculator, computed independently, are checked on every release

Results are for engineering estimation. Verify critical designs against the referenced standards and your own data.

This calculator online

https://calc.firecad.com/electrical/lighting/illuminance-uniformity

Open this case on calc.firecad.com →

Reopens the calculator with the inputs of this report.