SSL FiLMI 2.3

Field Luminance Mapping Instrument

SSL FiLMI 2.3 creates a luminance map over an area by one mouse click. This data can be used to determine the level and variation of luminance in the measurement area.

Example Application Areas

- Street lighting, EN 13201
- Tunnel lighting, EN14380, CIE 088
- Emergency lighting, EN-60598-2-22, ISO 30061:2007
- Displays, ST 431-1, ISO 2910
- Automotive

SSL FiLMI.base sw
Basic software

The Luminance and contrast measurements of the lights can be measured by choosing the suitable measurement area:

- Polygon
- Circle
- Rectangular

Open: Open the saved data image for post-process analysis.

Save: Saves data image

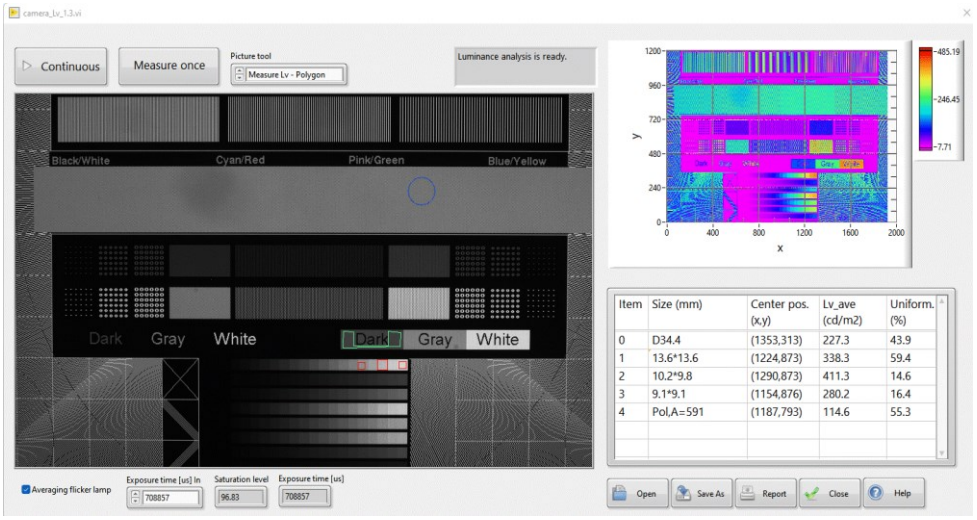
Report: Makes the report in word/pdf/html formats.

Continuous: Live camera

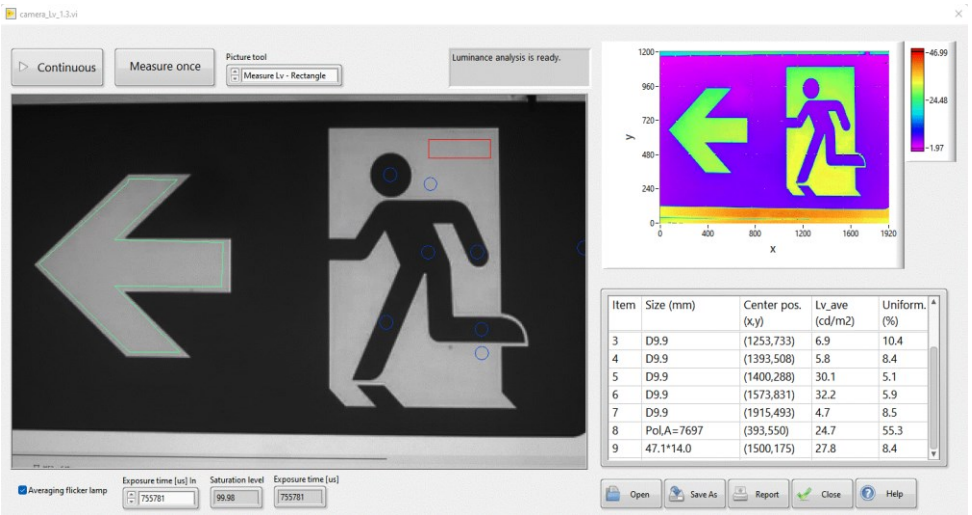
Measure Once: Measures a single image and auto-adjust the exposure time.

Averaging flicker: Removes a flickering effect to get the stable data.

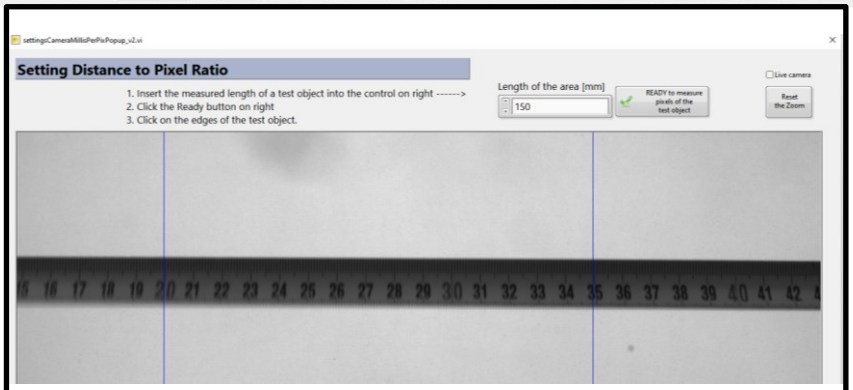
Options: Semi-automated PASS/FAIL results according to the customer standard requirements.



Item	Size (mm)	Center pos. (x,y)	Lv_ave (cd/m2)	Uniform. (%)
0	D34.4	(1353,313)	227.3	43.9
1	13.6*13.6	(1224,873)	338.3	59.4
2	10.2*9.8	(1290,873)	411.3	14.6
3	9.1*9.1	(1154,876)	280.2	16.4
4	Pol,A=591	(1187,793)	114.6	55.3



Item	Size (mm)	Center pos. (x,y)	Lv_ave (cd/m2)	Uniform. (%)
3	D9.9	(1253,733)	6.9	10.4
4	D9.9	(1393,508)	5.8	8.4
5	D9.9	(1400,288)	30.1	5.1
6	D9.9	(1573,831)	32.2	5.9
7	D9.9	(1915,493)	4.7	8.5
8	Pol,A=7697	(393,550)	24.7	55.3
9	47.1*14.0	(1500,175)	27.8	8.4



The distance scale of the image can be calibrated by a Define mm/pixel –button. The diameter of circle can be user-defined and its coordinates is chosen by mouse-clicking.

SSL FiLMI.Road sw. Measurements on the Road, inside the Tunnel, at Tunnel Entrance

Illumination at the Street / Road
can be measured either at the grid points set according to the EN13201-3 or from the luminance map of the selected street area. L_{av}, U_o and U_l are then analyzed. Pass-Fail criteria are calculated according EN13201-2. Glare analysis with Threshold Increment and Glare Index.

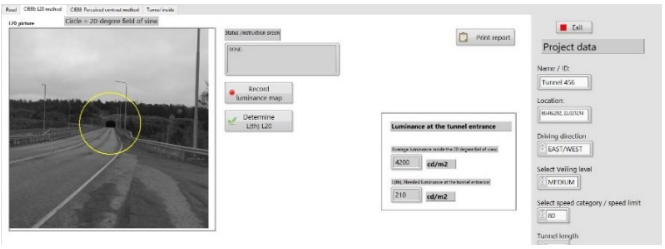
Illumination inside the tunnel is measured by selecting the area on the road or walls. Longitudial uniformity is measured by selecting a narrow area in the left side / middle / right side of the lane or road. When the measuring area is manually chosen

1. Measurement can be easily adapted to all kind of roads
2. Many situations causing errors can be eliminated

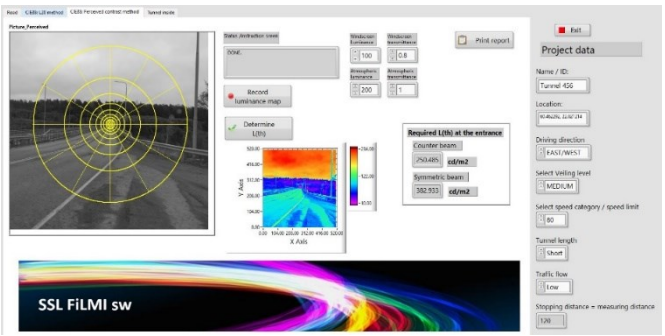
Illumination at the beginning of the tunnel has to be designed using the luminance of the surrounding of the tunnel entrance. SSL FiLMI 2.3 can determine this with L20 method and Perceived contrast method described in CIE 088.
The measuring procedure with both methods is the same.

1. Record the luminance map surrouding the tunnel entrance.
2. Mouse-click at the center of the tunnel entrance. The required luminance at the beginning of the tunnel is calculated.

L20 method



Perceived contrast method



Driving direction, veiling level and speed category are user-defined parameters.

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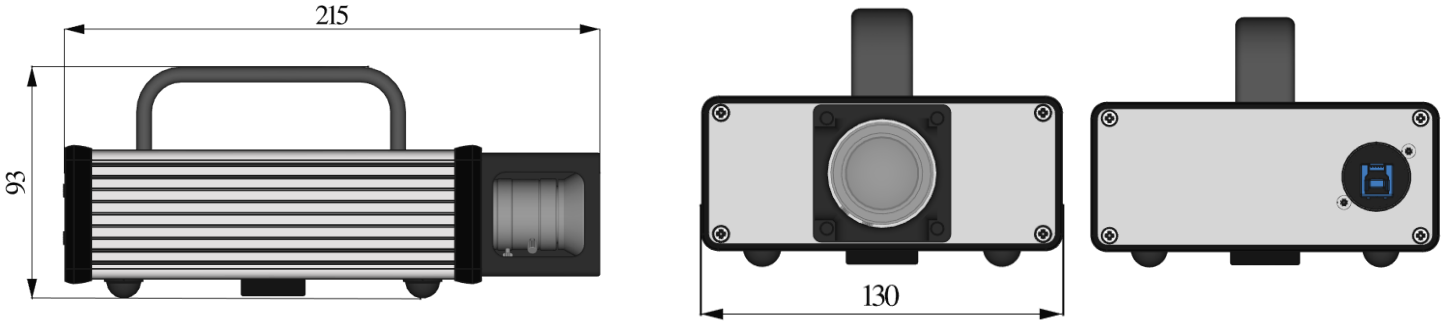
- SPECIFICATION

DEVICE CODE	SSL FiLMI 2.3
Detector	CMOS imaging luminance meter, 1920 x 1200 pixels (2.3Mpix), 12-bit A/D conversion
Measurement range[1] (cd/m2)	0.04 – 4 700 000 (with lens f-35mm) 1 – 90 000 000 (with lens f-8mm)
Dynamic range	1E+8
Focusing distance	0.1 m - ∞
Integration time	40 µs – 10 s
Spectral response[2]	Class A (f_1' <3%)
Dim.s (WxDx H, m)	130 mm x 215 mm x 93 mm, 1.2 kg
PC Interface	USB 3.0
Measurement software	SSL FiLMI.Auto-sw measurement parameters for road lighting standards like CIE 088 and EN 13201: ✓ L_{av} average luminance ✓ U_o overall uniformity, U_{ow} overall uniformity wet, U_l longitudinal uniformity The dedicated test routines includes ✓ required illumination at the tunnel entrance: L20 and perceived contrast methods ✓ Illumination inside the tunnel and at the street / road SSL FiLMI.base sw. Generic analysis tools for luminance within circle, rectangle, polygon. Result representation with grey-scale and false-color figures, average, standard deviation.
Package[3]	Case, 5m USB 3.0 cable, Factory calibration, Tripod adapter. SSL FiLMI-sw.

[1] Depend on the lens aperture.
[2] Designed for standard lenses 8mm and 35mm.
[3] Dedicated accessories for field measurements separately available.



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