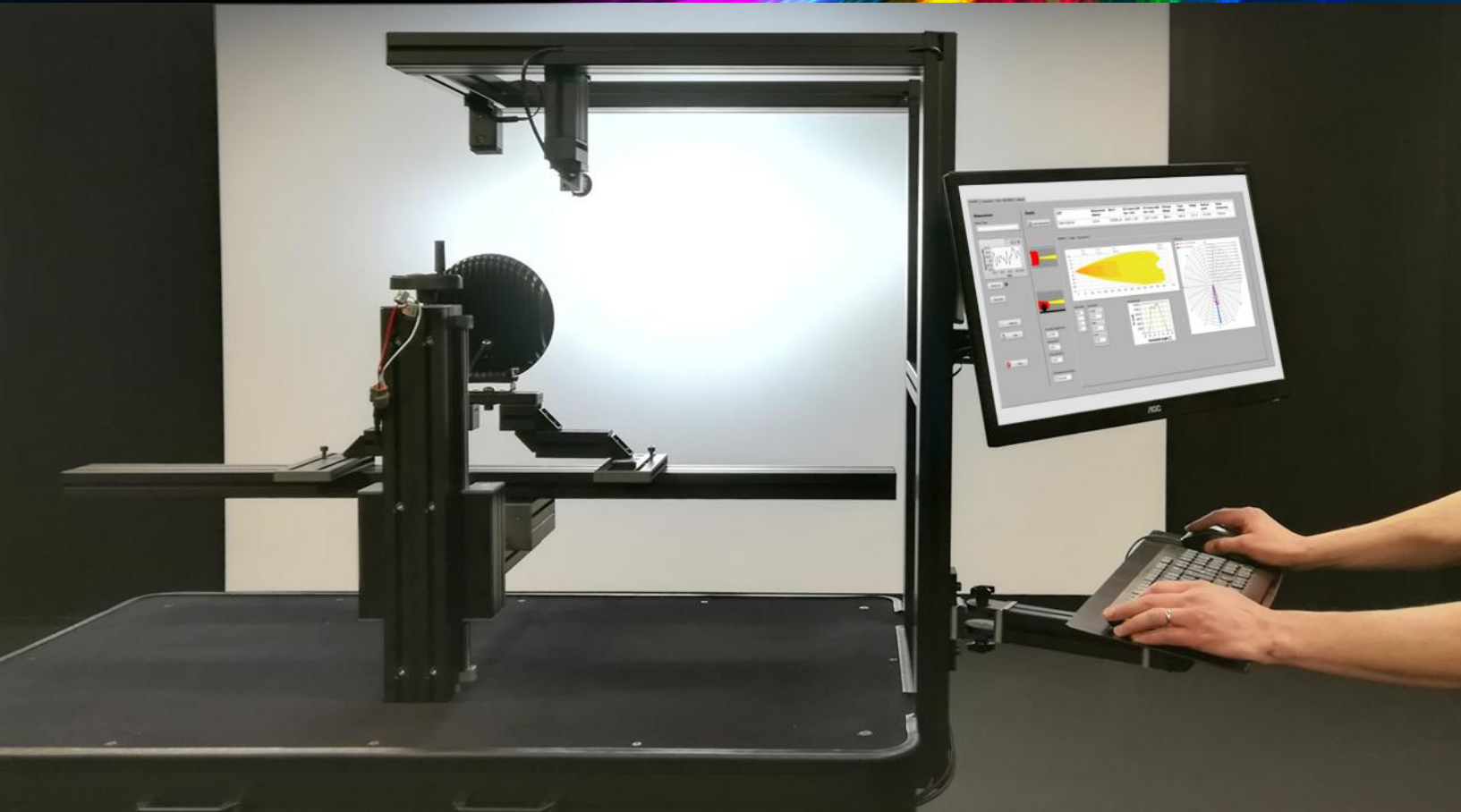


BEAM TESTER CAMERA SYSTEM

SSL BTC 20



SSL BTC 20 is a good choice for fast measurements of light beams with a reasonable accuracy. It is suitable for all kinds of directional and narrow beam sources, such as flashlights, automotive lights, signal lights and LED modules.

Test Parameters:

- ✓ Beam Pattern [cd]
- ✓ Isolux Curves [lx, m]
- ✓ Partial Luminous Flux [lm]
- ✓ ANSI/NEMA FL 1-2009: Runtime, Peak Beam Intensity, Beam Distance

Features:

- ✓ Light beam in seconds
- ✓ Quick assembly
- ✓ Intuitive software

Application

Beam Tester Camera is a setup where a luminaire is pointed towards a white screen and then a picture is taken of it by a camera. The camera image is then processed by an operating program. The program can also be used to view and compare existing measurement results by importing ies file or measurement file.

The test parameters are vertical and horizontal isolux-curves, beam width, beam distance and luminous flux, etc. The software makes pdf reports, and data comparison between three products.

Property	SSL BTC 20	Goniophotometer
Duration of measurement	Seconds	Minutes to tens of minutes
Easiness of operation	Minimal user input	More operational parameters
Accuracy of result	Reasonable ^[1]	Accurate ^[1]
Measurement angle	Hor $\pm 35^\circ$ / Ver $\pm 24^\circ$ ^[2]	Full 4π angular space available
Suitability	Narrow beam / directional sources Production line tests Limited dimensions ^[3]	All types of luminaires All kinds of attaching. All dimensions, including panels.
Min measurable lv	0.3 cd	0.001 cd ^[4]

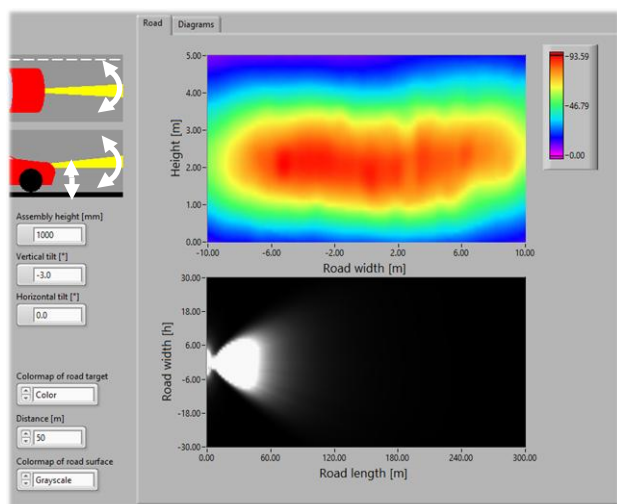
[1] The uncertainty for BTC 20 is <10 %, the uncertainty of a typical goniometer is <5%.

[2] Subject of geometry, given values on 4.0 x 2.5 m² screen with distance of 2.8 m.

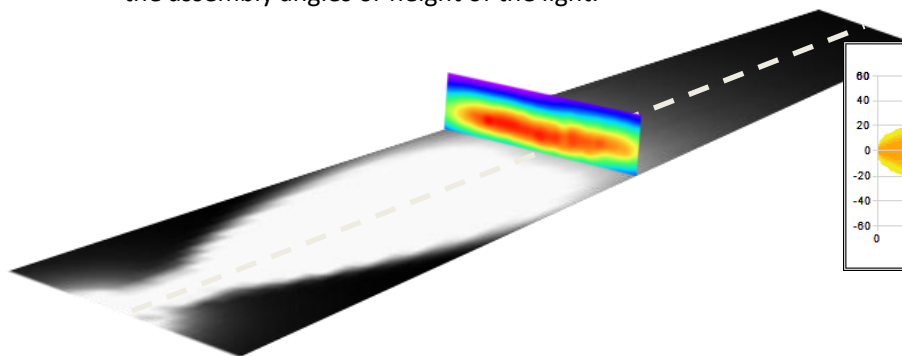
[3] The dimension limits for the luminaire are 1.4 m X 0.5 m and 20 kg.

[4] Subject of measurement distance.

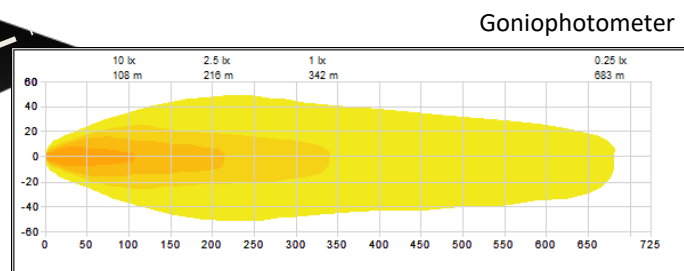
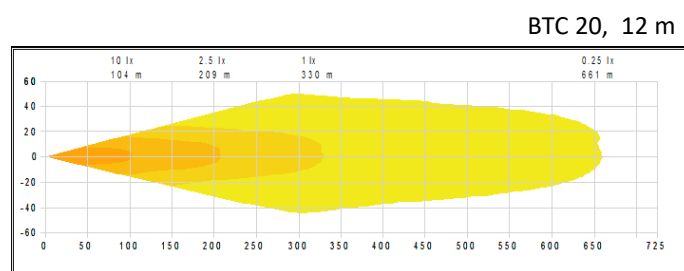
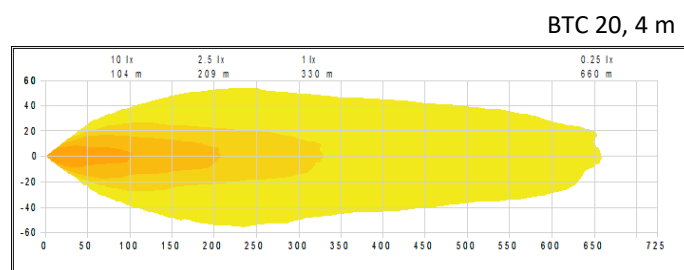
The measurement program is very easy and straightforward to use. Just align the luminaire and click the measure button. The results are ready in a few seconds. With the power source option, also the electrical parameters are measured.



The measurement program can visualize the effect of altering the assembly angles or height of the light.



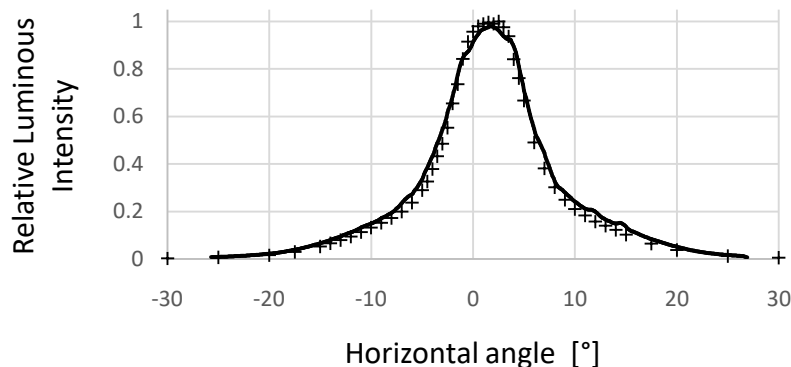
Light projection of a measured headlamp on road surface (grayscale) and on traversal plane at distance of 50 m (color).



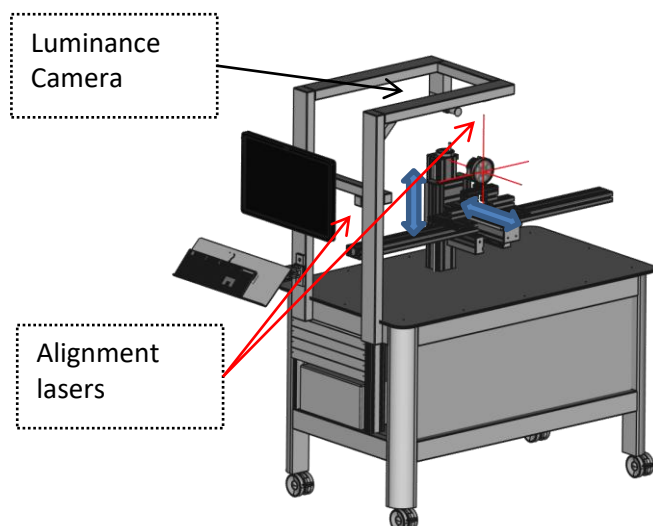
Comparison between calculated Isolux distances, measured with the BTC at 4 m, 12 m and a reference goniophotometer at 18 m.

SPECIFICATION

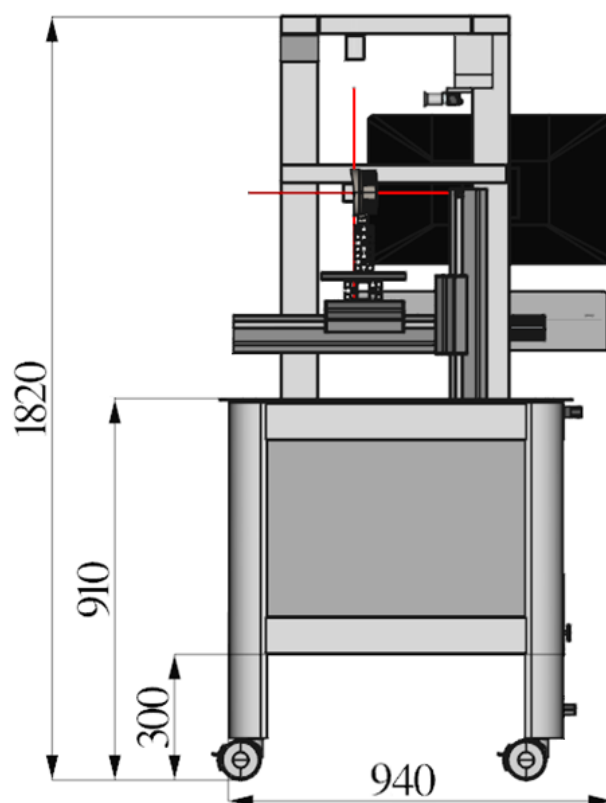
Property ^[1]	SSL BTC 20
Application area	For automotive lighting fixtures, for signal lights, for flashlights, for production tester
Electrical device integration	19" rack with 8U space for (optional) AC/DC power supply/meter
Alignment laser	2pcs of red cross-line laser (1mW, 635 nm), laser distance meter (measurement range 0.5 – 25 m)
Dimensions of the carriage	1.82 m (height), 0.94 m (width), 1.92 m (length), 110 kg (mass)
Height of optical axis	Approximately 1.25 m
White screen	4.0 x 2.5 m ² lambertian screen with wall attaching frames
Max dimensions of the DUT	1.4 m (length), 0.5 m (height), 20kg (mass)
Resolution	<0.1°
Measurement distance	3 m – 14 m
Measuring angle range ^[2]	±35° (Horizontal), ±24° (Vertical) @2.8 m
Measuring time	5 s – 20 s (depending on the luminous intensity of the LUT)
Measurement range	0.3 cd – 70 000 000 cd
Accuracy	7 % (lv), 4 % (Beam distance), ±2° (Beam angle)
Reproducibility	0.3 % (lv), 0.2 % (Beam distance), 0.5° (Beam angle) ^[3]



Angular distribution of a narrow beam source measured with SSL BTC 20 (solid) and a goniophotometer (x)



- [1] Based upon the f-8mm lens
- [2] Customizable by 35mm/6mm lens
- [3] The accuracy of the beam width depends on the shape of the beam



Dimensions of the carriage

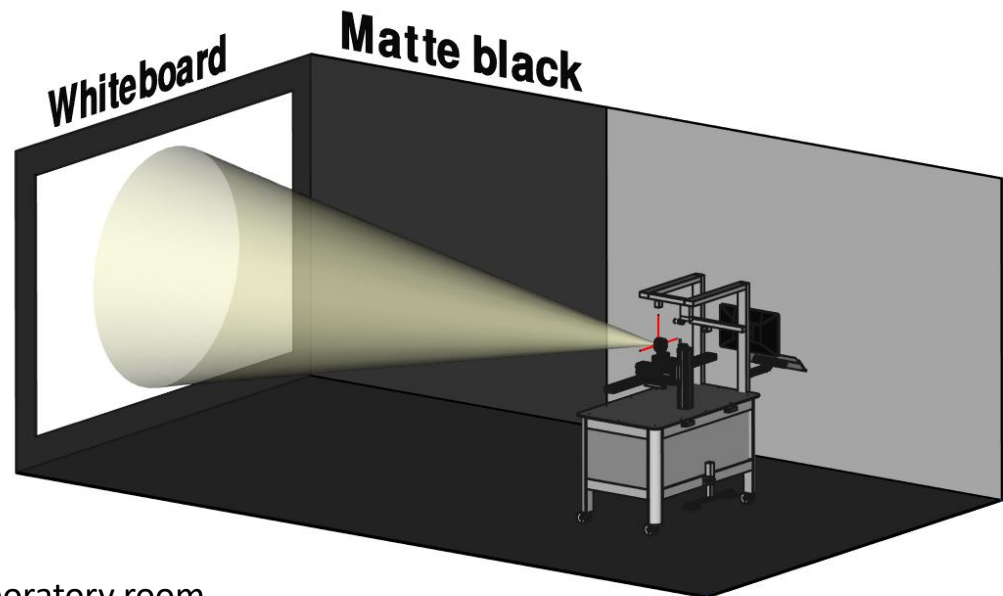
BTC 20 – Ordering Information

Beam Tester Camera Setup

SSL BTC 20	Carrier with wheels, sample holder (adjustments by small rail carriers), integrated 19" device rack for 8U power supply etc.), alignment lasers x 2pcs & laser distance meter, imaging luminance meter (2.3Mp, USB 3.0, 8-mm lens, $V(\lambda)$ filter $f_1' < 5\%$), measurement computer with 21" display & display holder, White screen (Lambert, 4m x 2.5 m) with wall attaching mechanism.
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Options

SSL BTC.motB	Motorized B plane axis for automatic measurement of beam at different vertical angles to measure the light distribution on the surfaces close to the luminaire. The set includes 1-axis motion controller, rotary stage and mechanics, software integration to combine the beam from multiple images
SSL BTC-black	Special low reflectance black material for a back wall and floor of laboratory room
SSL BTC-service	BTC system first installation and basic training including example measurements on customer site
SSL BTC-color	Imaging luminance meter replaced by imaging colorimeter
SSL C-400.Lv	Additional spot luminance/colorimeter C-400 with integration to measurement program
SSL SPEKTRI 80.Lv	Additional spectral radiance meter Spektri 80 with integration to measurement program
SSL-DC-750	TDK GEN 750 W, programmable DC power supply, 19" 1U with integration to measurement program
SSL-AC-2	GW Instek APS-7050, programmable AC power supply, 19" 2U with integration to measurement program



Requirements for the laboratory room

- Room height > 2.65 m, preferably 3 m
- Room width > 4.15 m, preferably > 6 m
- No reflecting surfaces between the whiteboard and the carriage (E.g. ceiling lamps)