

Photometric Test Report



ECLFRESNELJTU

Warm White LED Fresnel Luminaire

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TESTING PROCESS

Prolights has its own optical testing laboratory in order to provide accurate photometric reports for its lighting products. The testing laboratory contains certain variety of precise lighting measurement systems that ensure an optimal reading of all the characteristic parameters of the lighting devices. All measurements are made at a controlled room temperature of 20°C without any external light sources. This photometric report is obtained through the data measured by a high precision measurement system and analyzed by a dedicate software.

Prolights measurement instrument

Prolights measurement instrument is a complete measurement system for any light source. It's equipped with two-axis goniometer, that enables to measure the full 3D distribution field of the light source. This instrument measures the light intensity, the beam angle and the most significative colors parameters, like color temperature, spectral distribution, CRI, CQS, TM-30 with a very high accuracy rate.

Please Note: All measurements are made with light source at operating temperature. Before starting the measurement, the instrument analyzes the process of the light source during the heating phase. The measuring process of all the parameters begins only when the light emission is stable, that is with a variation of less than 0.5% in a 15 minutes time frame.

Prolights measurement software

The software provides user friendly interface for the operator who does the measurements, and it also analyzes and processes all the collected data by the instrument. With this software it is possible to see the measured data in real-time and it is possible to examine all the measured data and graphics afterwards as well. All information is collected in a specific Prolights template, and the software creates also IES and LDT files, which are widely used to transfer the photometric data, and to develop lighting system.

Additionally, the fixtures are rechecked using various hand-held instruments like Sekonic C-700 and Gossen Mavospec Base, this is done to ensure, that the data in the photometric report are as accurate as possible.



Total lumen output:

4631 lm

Peak candela output:

5172 cd

Light quality:

CRI: 97,7

Color temperature:

3019 K

PRODUCT NAME:

ECLFRESNELJTU

MEASURAMENT CONDITIONS:

Beam angle:

Max Zoom

Target:

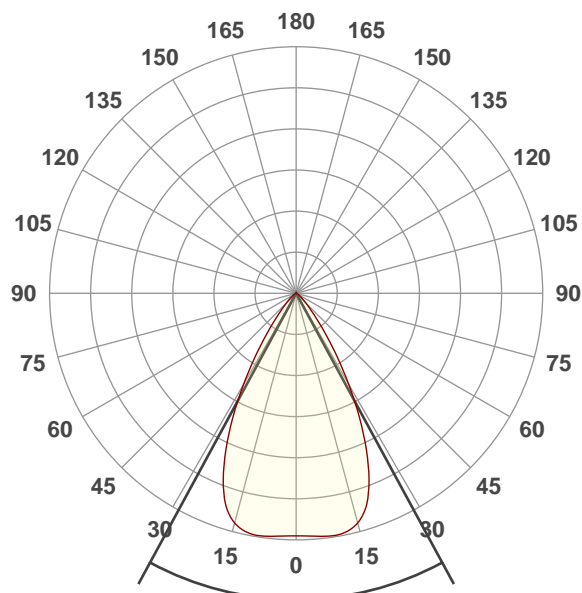
Warm White

Operator:

Paolo Carvone

Date and time:

07/02/2020 11:11:29

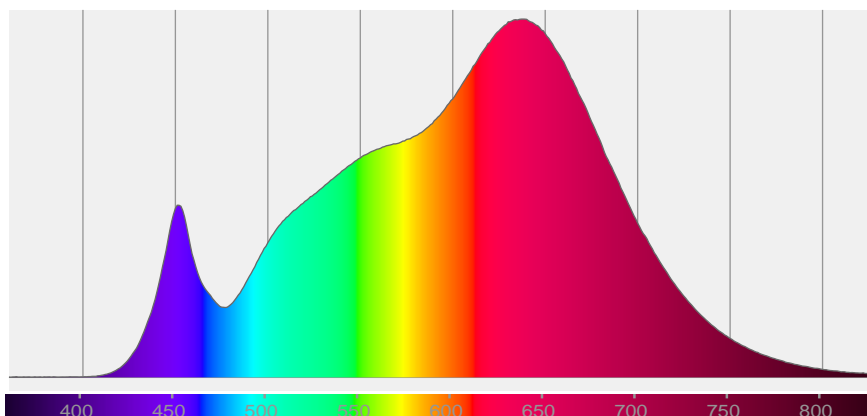


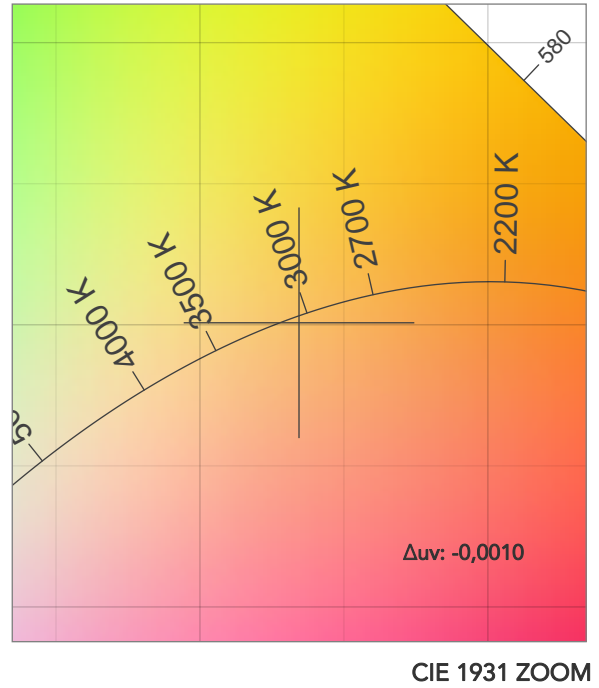
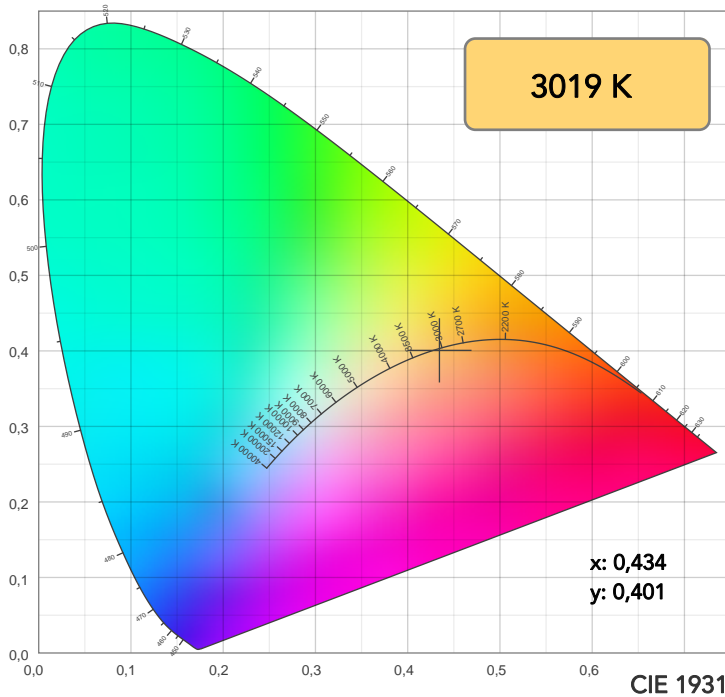
Beam angle 50%: 57°

Field angle 10%: 81,6°

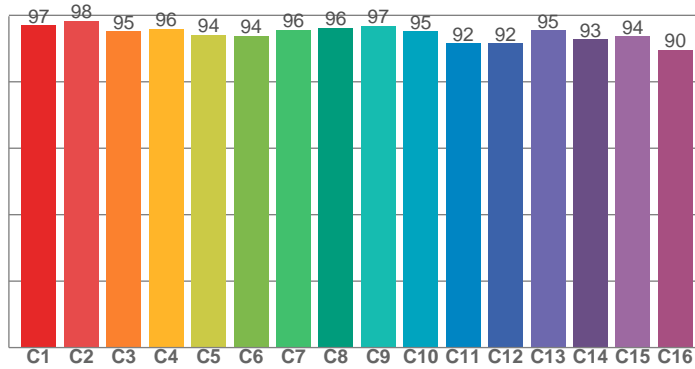
Cut off angle 2.5%: 103,7°

Spectra

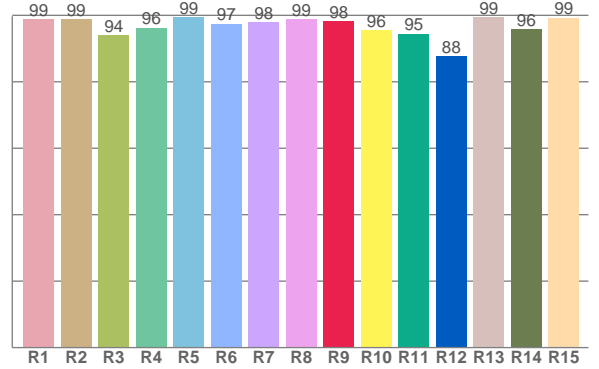




TM30: 94,8



CRI: 97,7 (R1-R8)



CRI R values, only R1-R8 are used to calculate final CRI value

| R1 | R2 | R3 | R4 | R5 | R6 | R7 | R8 | R9 | R10 | R11 | R12 | R13 | R14 | R15 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 98,9 | 98,7 | 94,1 | 96,2 | 99,4 | 97,4 | 97,8 | 98,8 | 98,1 | 95,5 | 94,5 | 87,7 | 99,4 | 95,7 | 99,3 |

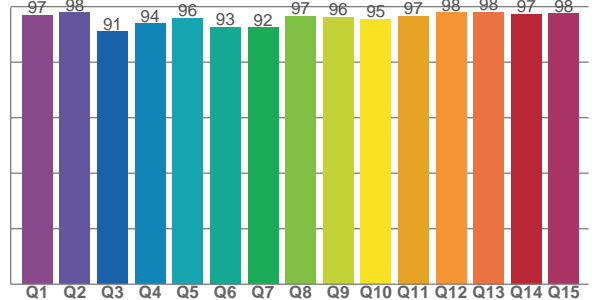
TM30 C values, 16 binned values out of total of 99 C values

| C1 | C2 | C3 | C4 | C5 | C6 | C7 | C8 | C9 | C10 | C11 | C12 | C13 | C14 | C15 | C16 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 97,0 | 98,3 | 95,2 | 95,9 | 94,1 | 93,9 | 95,6 | 96,2 | 96,9 | 95,1 | 91,5 | 91,5 | 95,5 | 92,8 | 93,7 | 89,7 |

CQS Q values

| Q1 | Q2 | Q3 | Q4 | Q5 | Q6 | Q7 | Q8 | Q9 | Q10 | Q11 | Q12 | Q13 | Q14 | Q15 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 96,9 | 97,9 | 90,9 | 93,9 | 96,0 | 92,7 | 92,5 | 96,5 | 96,3 | 95,5 | 96,7 | 97,9 | 98,0 | 97,4 | 97,6 |

CQS: 95,0



COLOR PARAMETERS

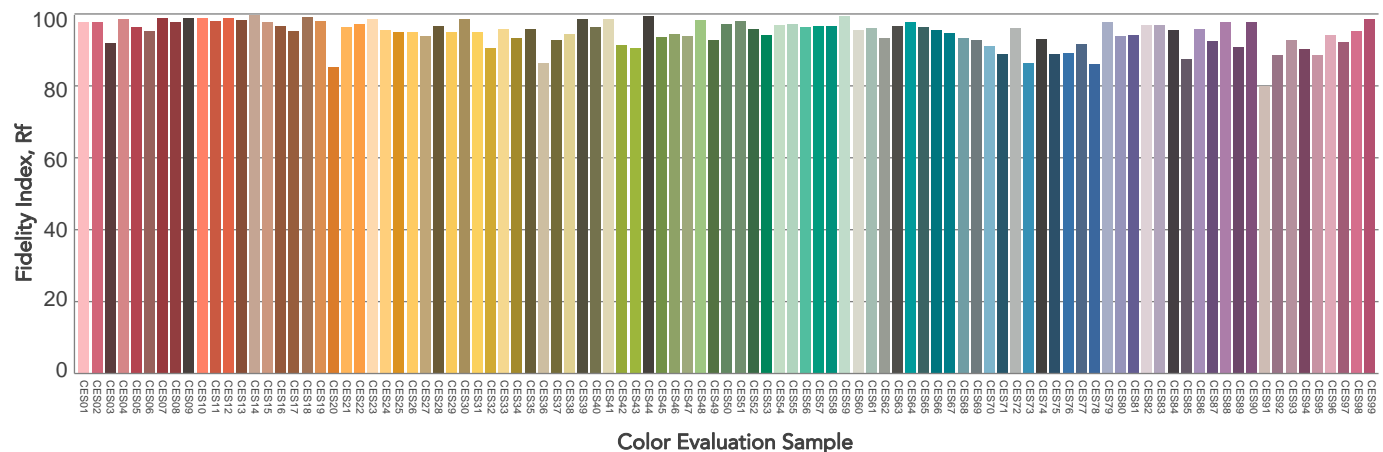
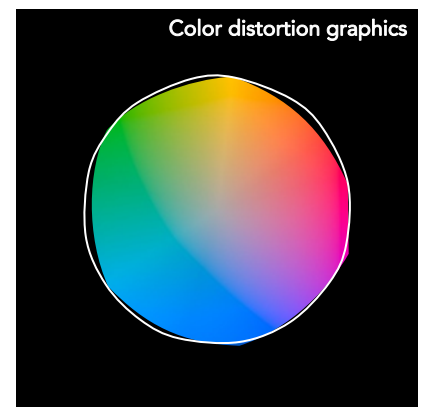
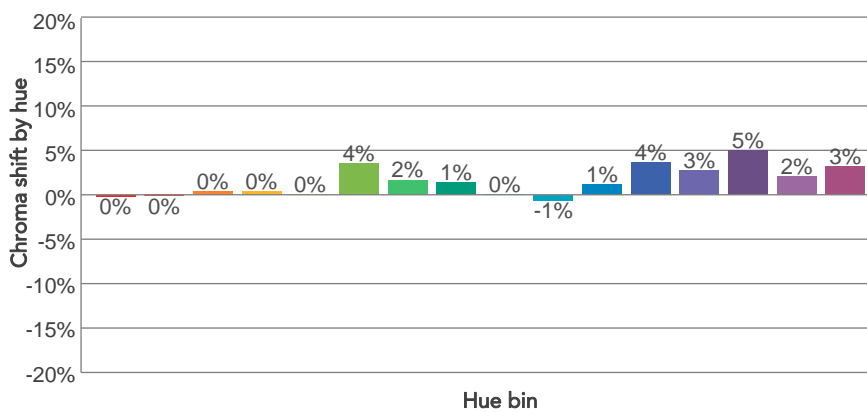
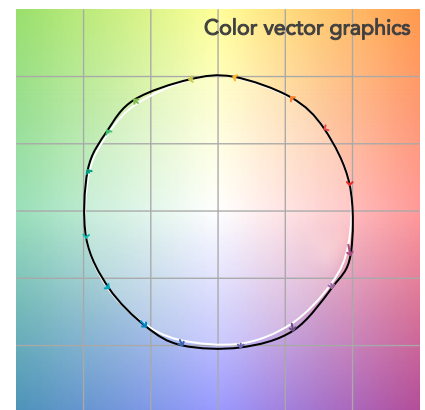
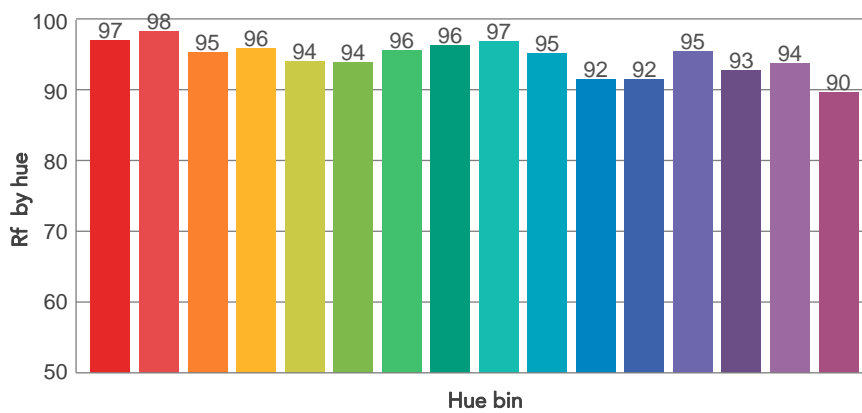
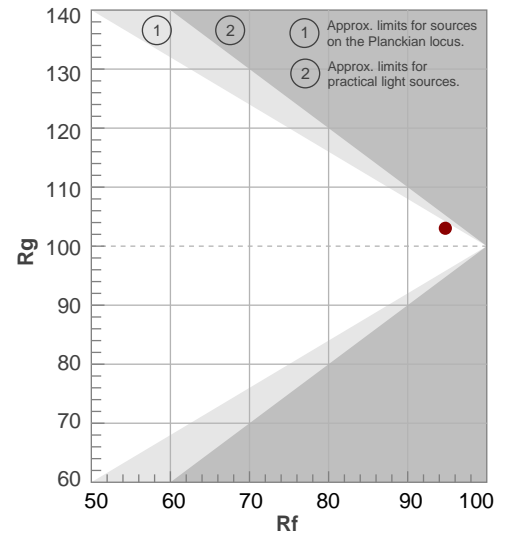
| Color temperature | Color rendering index | Red component | Color fidelity | Color gamut | Color quality scale | Television lighting index | Color coordinate cie 1931 | Color coordinate cie 1931 | Color deviation from black body |
|-------------------|-----------------------|---------------|----------------|-------------|---------------------|---------------------------|---------------------------|---------------------------|---------------------------------|
| CCT | CRI | CRI R9 | TM30 Rf | TM30 Rg | CQS | TLCI | x | y | Δuv |
| 3019 K | 97,7 | 98,1 | 94,8 | 103,0 | 95,0 | 98 | 0,434 | 0,401 | -0,0010 |

TM30 DETAILS

Rf 94,8
Fidelity index Rf

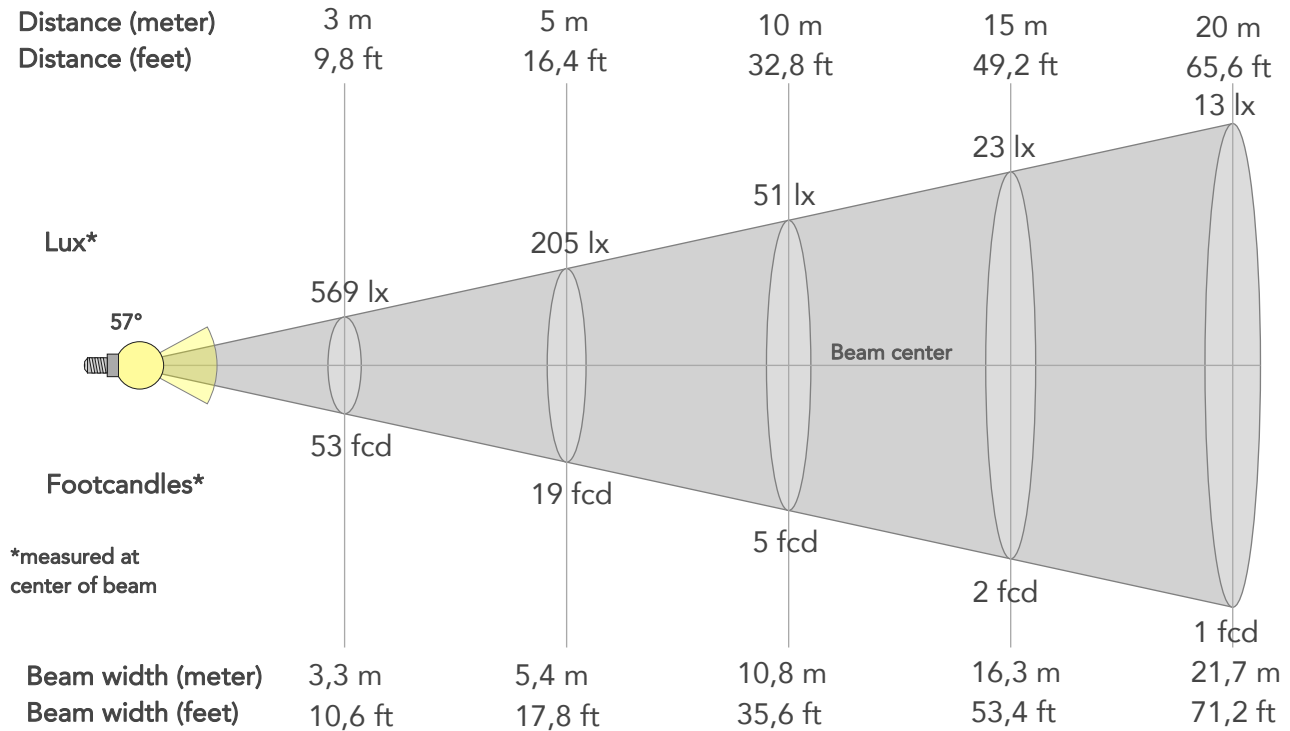
Rg 103,0
Gammut index

| Hue Bin | R _f | Graphic shifts (%) | |
|---------|----------------|--------------------|-----|
| | | Chroma | Hue |
| 1 | 97 | 0% | -1% |
| 2 | 98 | 0% | 0% |
| 3 | 95 | 0% | 2% |
| 4 | 96 | 0% | 2% |
| 5 | 94 | 0% | 2% |
| 6 | 94 | 4% | 1% |
| 7 | 96 | 2% | -1% |
| 8 | 96 | 1% | -2% |
| 9 | 97 | 0% | 0% |
| 10 | 95 | -1% | 2% |
| 11 | 92 | 1% | 5% |
| 12 | 92 | 4% | 2% |
| 13 | 95 | 3% | -1% |
| 14 | 93 | 5% | -2% |
| 15 | 94 | 2% | -2% |
| 16 | 90 | 3% | -7% |



BEAM DETAILS

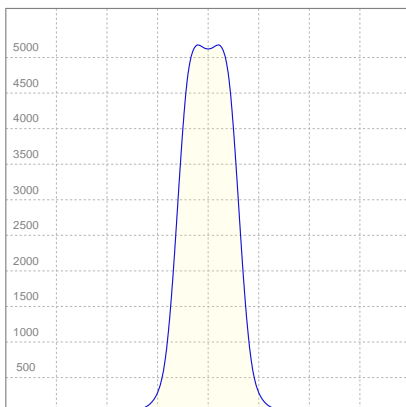
| Beam angle 50% | Field angle 10% | Cut off angle 2,5% | Intensity ratio in 120° cone | Intensity ratio in 90° cone |
|----------------|-----------------|--------------------|------------------------------|-----------------------------|
| 57° | 81,6° | 103,7° | 97,8% | 94,1% |



BEAM INTENSITIES AND WIDTHS

| Distance | 1m | 2m | 3m | 4m | 5m | 7,5m | 10m | 15m | 20m | 25m | 30m | 40m | 50m |
|-----------|--------|--------|--------|--------|--------|--------|--------|--------|--------|-------|---------|---------|---------|
| Distance | 3,3ft | 6,6ft | 9,8ft | 13,1ft | 16,4ft | 24,6ft | 32,8ft | 49,2ft | 65,6ft | 82ft | 98,4ft | 131,2ft | 164ft |
| Lux | 5123lx | 1281lx | 569lx | 320lx | 205lx | 91lx | 51lx | 23lx | 13lx | 8lx | 6lx | 3lx | 2lx |
| Footcand. | 476fcd | 119fcd | 53fcd | 30fcd | 19fcd | 8fcd | 5fcd | 2fcd | 1fcd | 1fcd | 1fcd | 0fcd | 0fcd |
| Beam wid. | 1,1m | 2,2m | 3,3m | 4,3m | 5,4m | 8,1m | 10,8m | 16,3m | 21,7m | 27,1m | 32,5m | 43,4m | 54,2m |
| Beam wid. | 3,6ft | 7,2ft | 10,6ft | 14,2ft | 17,8ft | 26,7ft | 35,6ft | 53,4ft | 71,2ft | 89ft | 106,8ft | 142,4ft | 177,9ft |

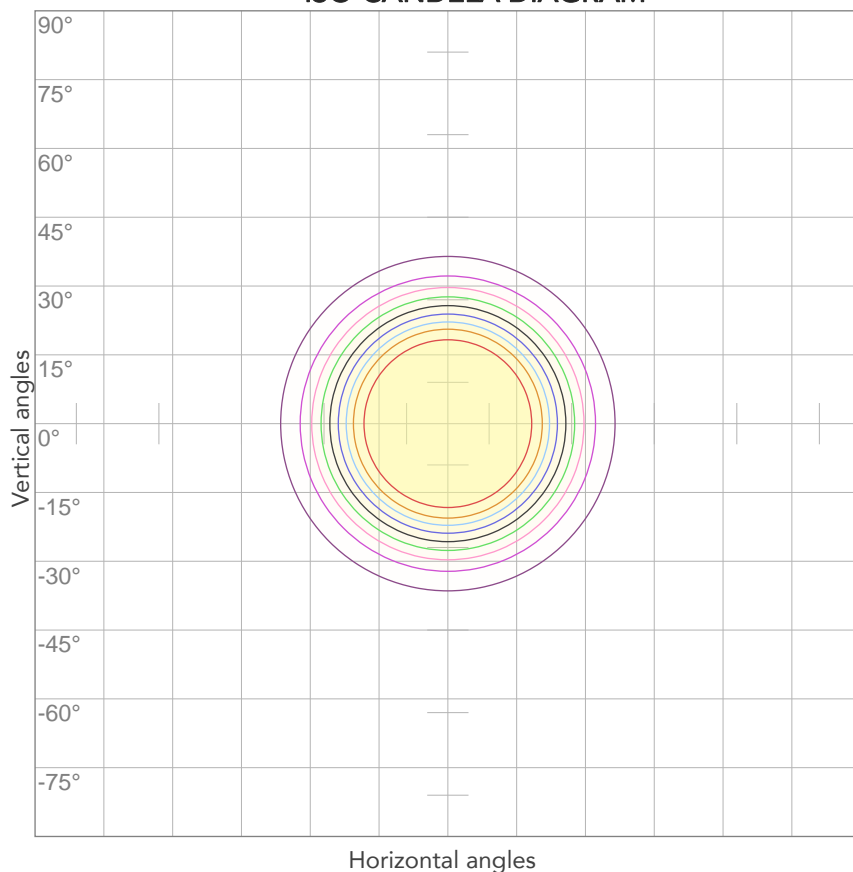
LINEAR DISTRIBUTION DIAGRAM



ELECTRICAL SPECIFICATIONS

| Input voltage | Input current | Input power | Effeciency |
|---------------|---------------|-------------|------------|
| 226V | 0,422A | 90,0W | 51lm/W |
| Power Fc | | | |
| 0,94 | | | |

ISO CANDELA DIAGRAM



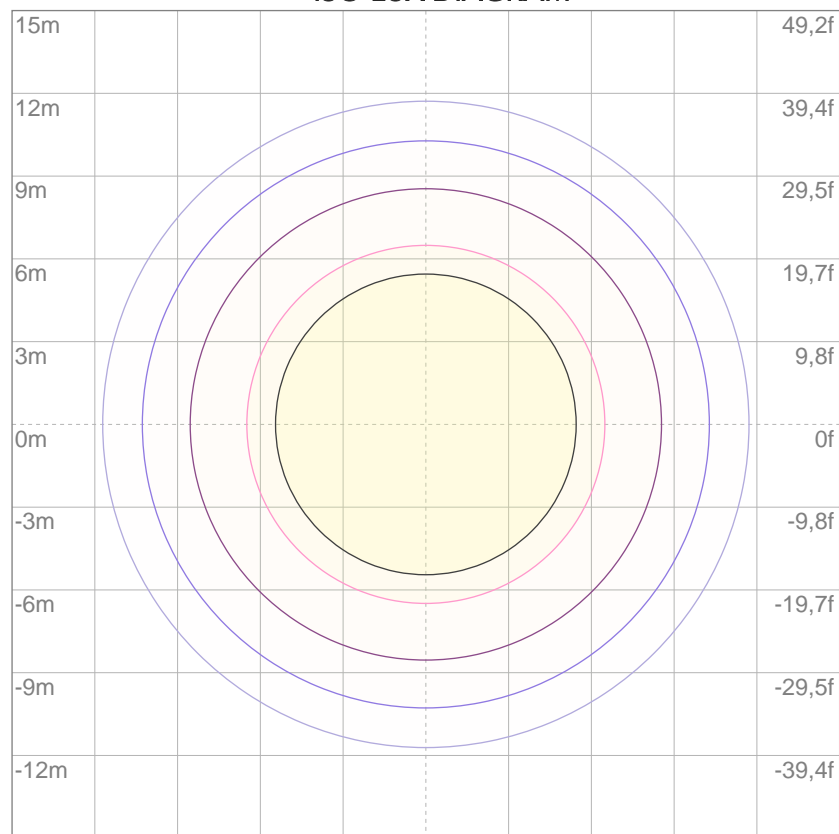
| | |
|-----|---------|
| 10% | 512 cd |
| 20% | 1025 cd |
| 30% | 1537 cd |
| 40% | 2049 cd |
| 50% | 2561 cd |
| 60% | 3074 cd |
| 70% | 3586 cd |
| 80% | 4098 cd |

Conditions:

Number of c-planes: 2

Candela at center: 5123 cd

ISO LUX DIAGRAM



| | |
|-----|---------|
| 3% | 1,54 lx |
| 5% | 2,56 lx |
| 10% | 5,12 lx |
| 30% | 15,4 lx |
| 50% | 25,6 lx |

Conditions:

Number of c-planes: 2

Lux at center: 51,2 lx

Lux distribution on a surface when lamp is mounted at 10 meters from the surface.



Total lumen output:

4357 lm

Peak candela output:

14472 cd

Light quality:

CRI: 97,7

Color temperature:

3033 K

PRODUCT NAME:

ECLFRESNELJTU

MEASURAMENT CONDITIONS:

Beam angle:

Med Zoom

Target:

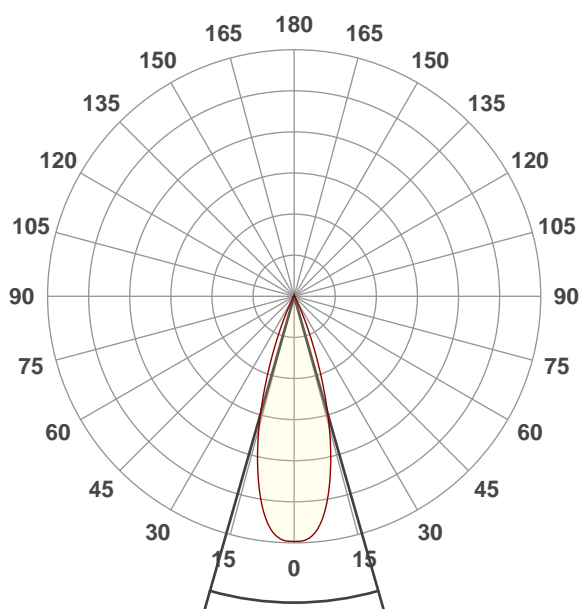
Warm White

Operator:

Paolo Carvone

Date and time:

07/02/2020 11:09:01

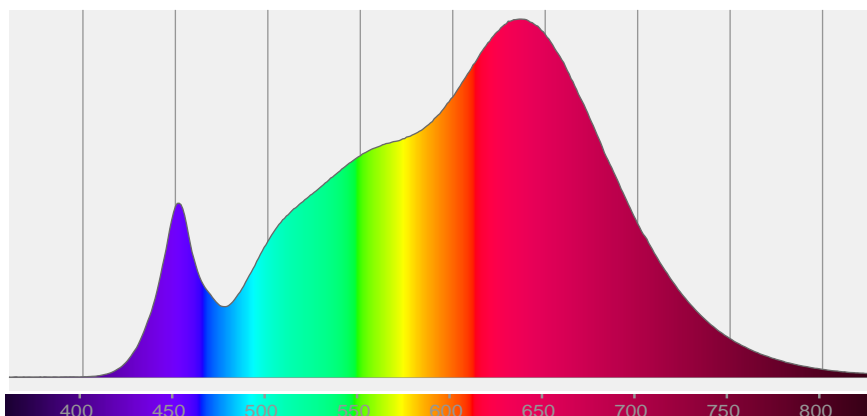


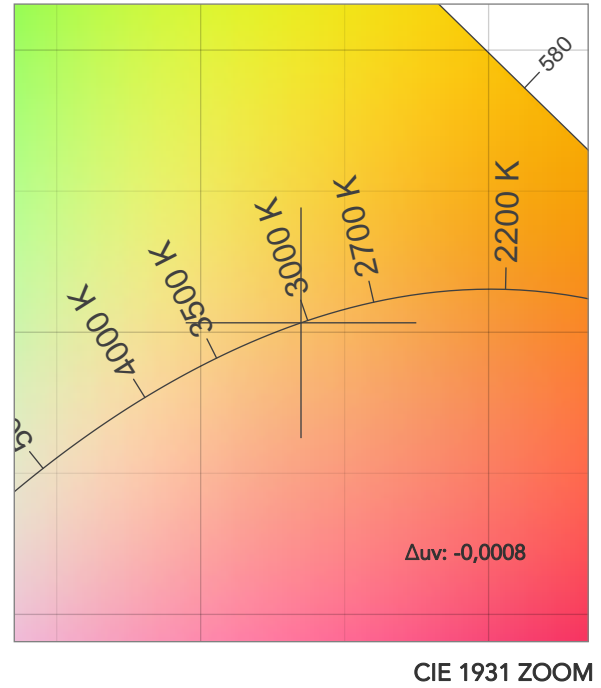
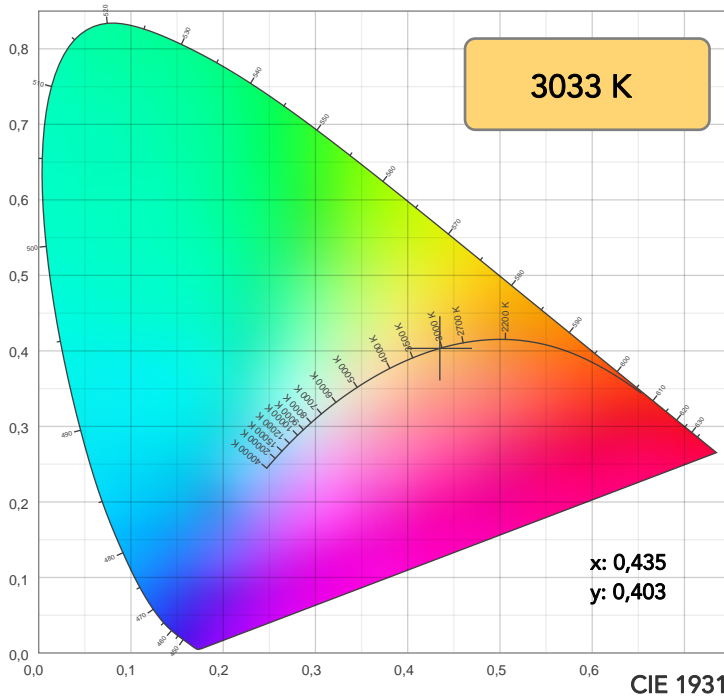
Beam angle 50%: 31,9°

Field angle 10%: 48,6°

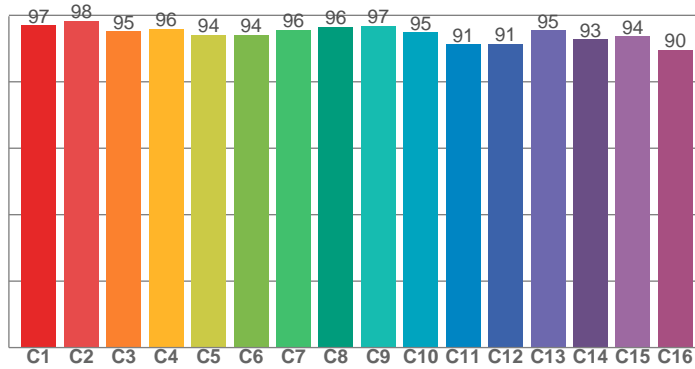
Cut off angle 2.5%: 58,5°

Spectra

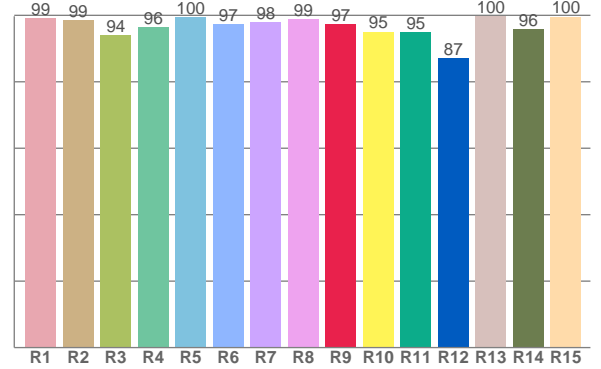




TM30: 94,7



CRI: 97,7 (R1-R8)



CRI R values, only R1-R8 are used to calculate final CRI value

| R1 | R2 | R3 | R4 | R5 | R6 | R7 | R8 | R9 | R10 | R11 | R12 | R13 | R14 | R15 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 99,2 | 98,6 | 94,0 | 96,4 | 99,5 | 97,3 | 97,9 | 98,8 | 97,2 | 95,1 | 94,8 | 87,2 | 99,7 | 95,7 | 99,6 |

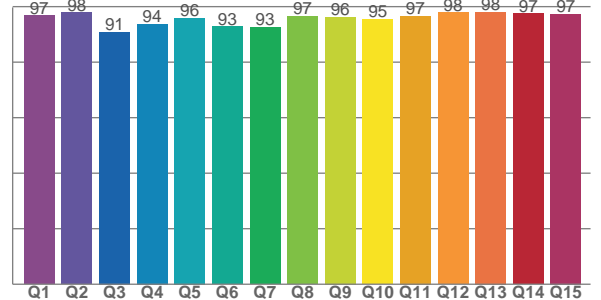
TM30 C values, 16 binned values out of total of 99 C values

| C1 | C2 | C3 | C4 | C5 | C6 | C7 | C8 | C9 | C10 | C11 | C12 | C13 | C14 | C15 | C16 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 97,0 | 98,3 | 95,1 | 95,9 | 94,1 | 94,0 | 95,6 | 96,5 | 96,9 | 94,8 | 91,3 | 91,4 | 95,5 | 92,7 | 93,7 | 89,6 |

CQS Q values

| Q1 | Q2 | Q3 | Q4 | Q5 | Q6 | Q7 | Q8 | Q9 | Q10 | Q11 | Q12 | Q13 | Q14 | Q15 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 96,8 | 97,9 | 90,8 | 93,7 | 96,0 | 92,9 | 92,6 | 96,5 | 96,3 | 95,4 | 96,6 | 97,9 | 98,1 | 97,5 | 97,4 |

CQS: 95,0



COLOR PARAMETERS

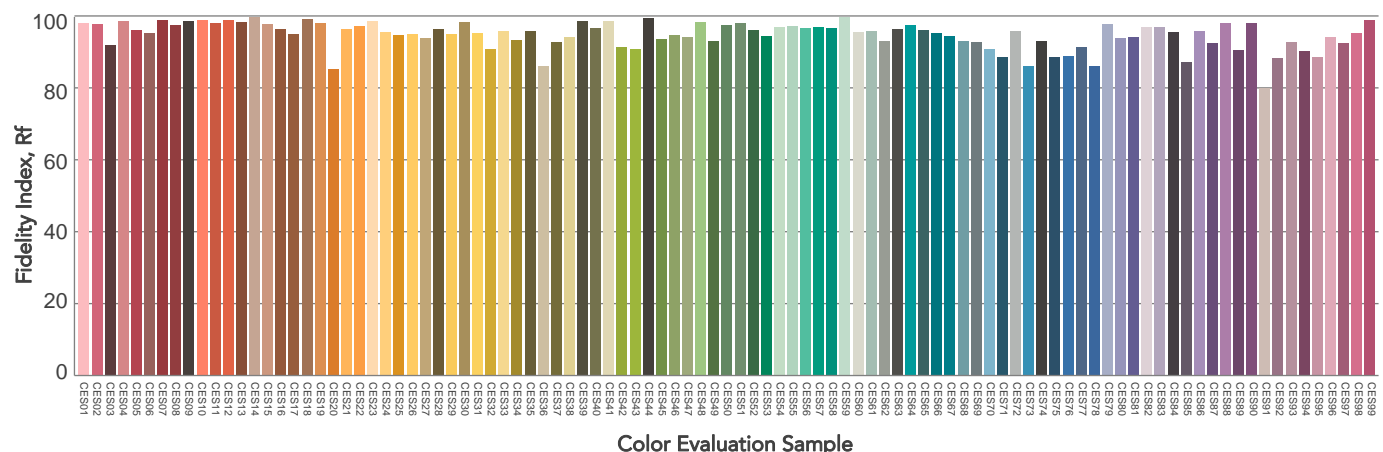
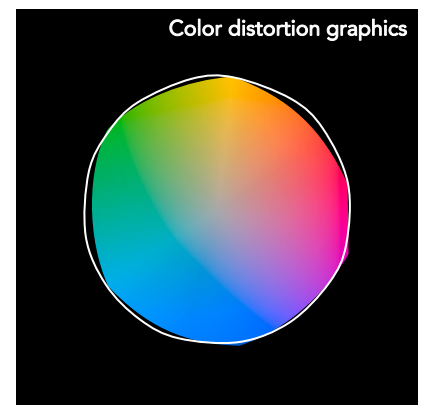
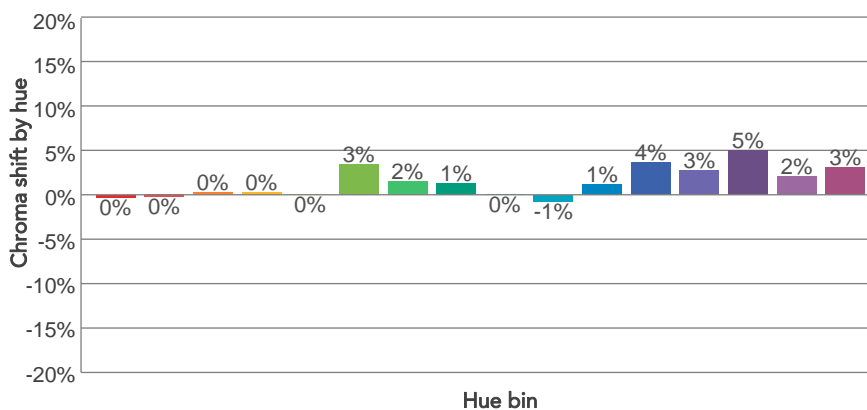
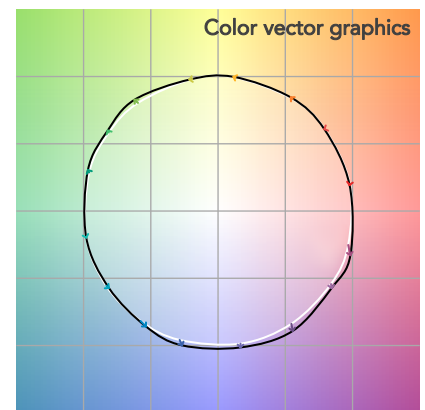
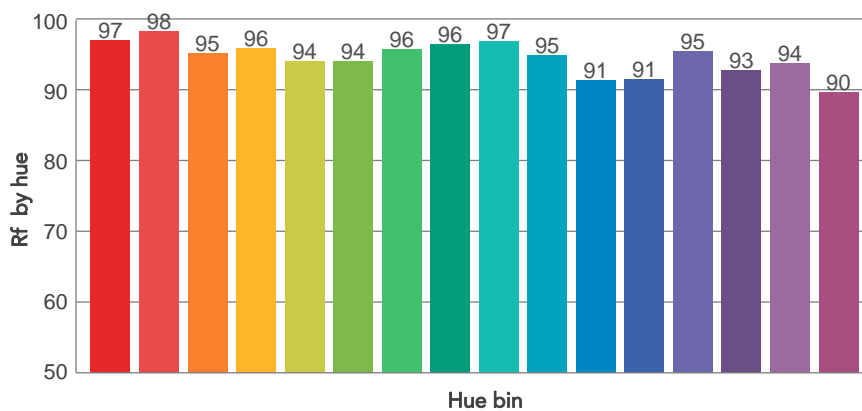
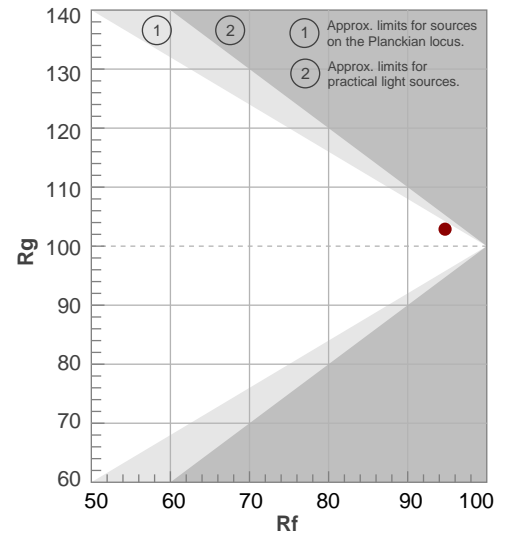
| Color temperature | Color rendering index | Red component | Color fidelity | Color gamut | Color quality scale | Television lighting index | Color coordinate cie 1931 | Color coordinate cie 1931 | Color deviation from black body |
|-------------------|-----------------------|---------------|----------------|-------------|---------------------|---------------------------|---------------------------|---------------------------|---------------------------------|
| CCT | CRI | CRI R9 | TM30 Rf | TM30 Rg | CQS | TLCI | x | y | Δuv |
| 3033 K | 97,7 | 97,2 | 94,7 | 102,9 | 95,0 | 98 | 0,435 | 0,403 | -0,0008 |

TM30 DETAILS

Rf 94,7
Fidelity index Rf

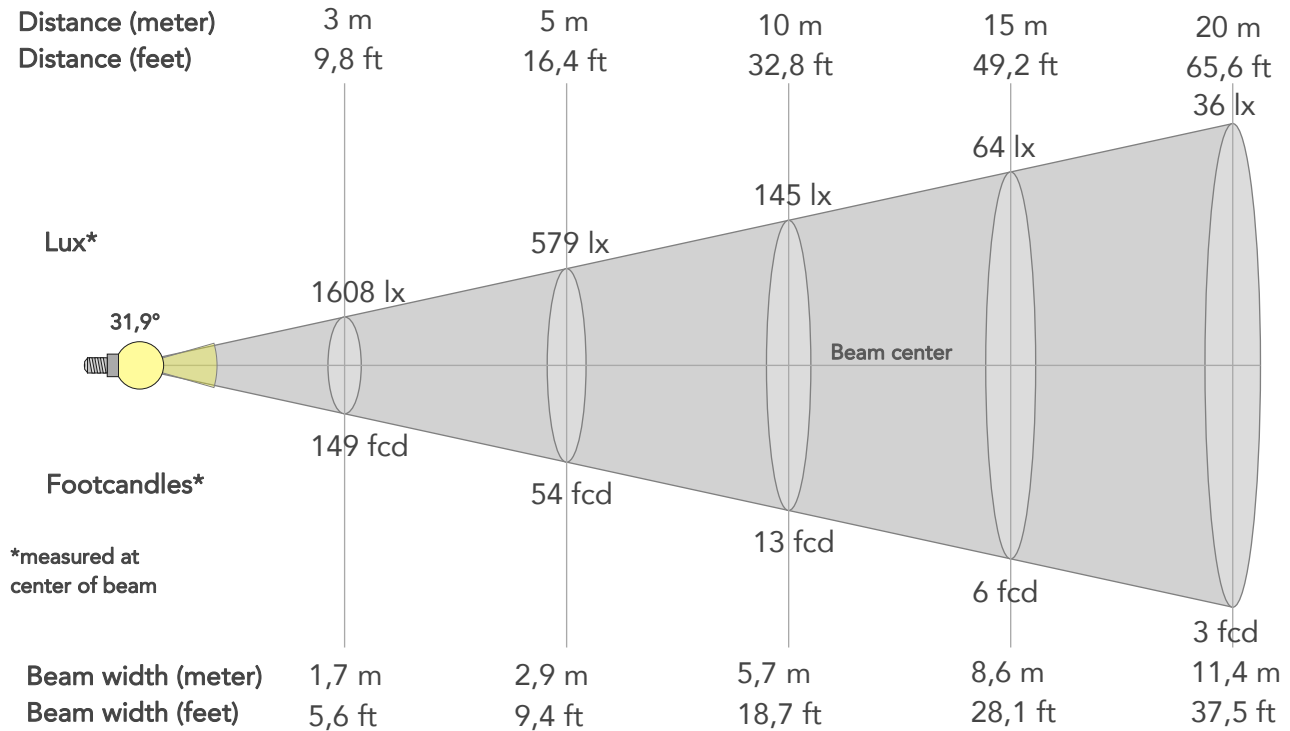
Rg 102,9
Gammut index

| Hue Bin | R _f | Graphic shifts (%) | |
|---------|----------------|--------------------|-----|
| | | Chroma | Hue |
| 1 | 97 | 0% | -1% |
| 2 | 98 | 0% | 0% |
| 3 | 95 | 0% | 2% |
| 4 | 96 | 0% | 2% |
| 5 | 94 | 0% | 2% |
| 6 | 94 | 3% | 1% |
| 7 | 96 | 2% | -1% |
| 8 | 96 | 1% | -2% |
| 9 | 97 | 0% | 0% |
| 10 | 95 | -1% | 2% |
| 11 | 91 | 1% | 6% |
| 12 | 91 | 4% | 3% |
| 13 | 95 | 3% | -1% |
| 14 | 93 | 5% | -2% |
| 15 | 94 | 2% | -2% |
| 16 | 90 | 3% | -7% |



BEAM DETAILS

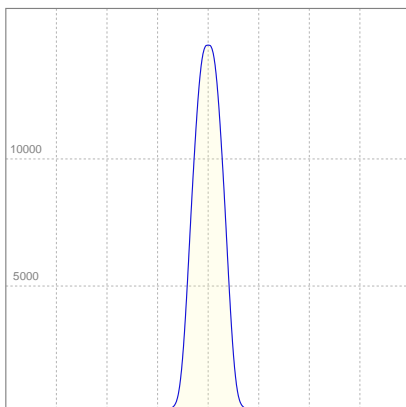
| Beam angle 50% | Field angle 10% | Cut off angle 2,5% | Intensity ratio in 120° cone | Intensity ratio in 90° cone |
|----------------|-----------------|--------------------|------------------------------|-----------------------------|
| 31,9° | 48,6° | 58,5° | 98,0% | 96,2% |



BEAM INTENSITIES AND WIDTHS

| Distance | 1m | 2m | 3m | 4m | 5m | 7,5m | 10m | 15m | 20m | 25m | 30m | 40m | 50m |
|-----------|---------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|---------|--------|
| Distance | 3,3ft | 6,6ft | 9,8ft | 13,1ft | 16,4ft | 24,6ft | 32,8ft | 49,2ft | 65,6ft | 82ft | 98,4ft | 131,2ft | 164ft |
| Lux | 14472lx | 3618lx | 1608lx | 905lx | 579lx | 257lx | 145lx | 64lx | 36lx | 23lx | 16lx | 9lx | 6lx |
| Footcand. | 1345fcd | 336fcd | 149fcd | 84fcd | 54fcd | 24fcd | 13fcd | 6fcd | 3fcd | 2fcd | 1fcd | 1fcd | 1fcd |
| Beam wid. | 0,6m | 1,1m | 1,7m | 2,3m | 2,9m | 4,3m | 5,7m | 8,6m | 11,4m | 14,3m | 17,1m | 22,9m | 28,6m |
| Beam wid. | 1,9ft | 3,8ft | 5,6ft | 7,5ft | 9,4ft | 14,1ft | 18,7ft | 28,1ft | 37,5ft | 46,8ft | 56,2ft | 75ft | 93,7ft |

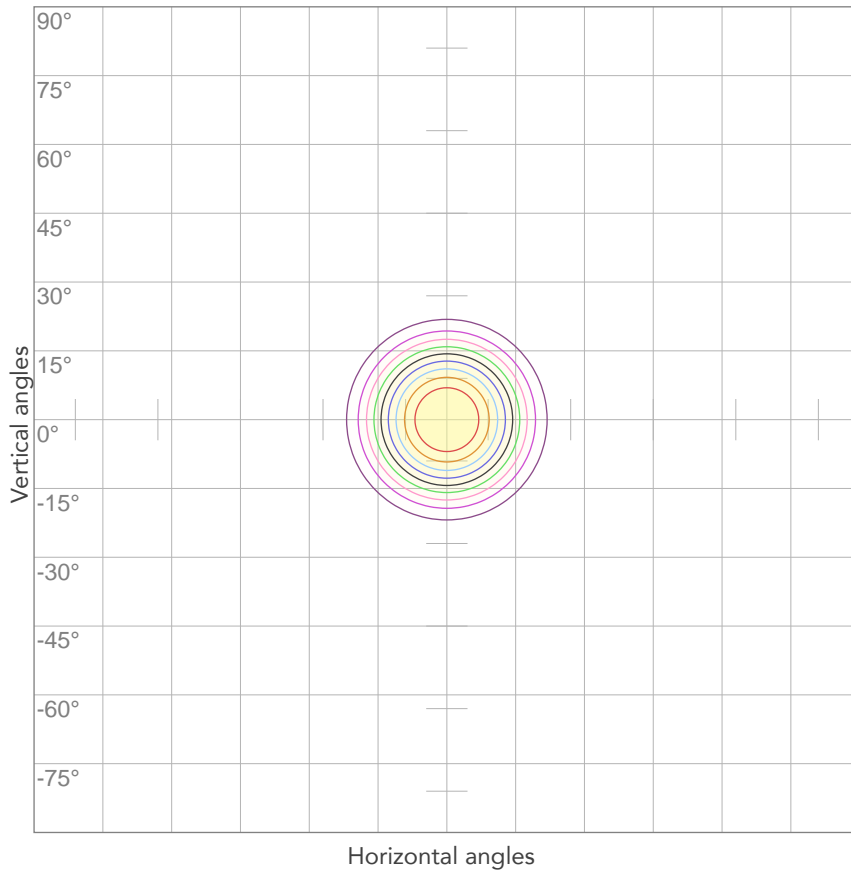
LINEAR DISTRIBUTION DIAGRAM



ELECTRICAL SPECIFICATIONS

| Input voltage | Input current | Input power | Effeciency |
|---------------|---------------|-------------|------------|
| 227V | 0,421A | 90,1W | 48lm/W |
| Power Fc | | | |
| 0,94 | | | |

ISO CANDELA DIAGRAM



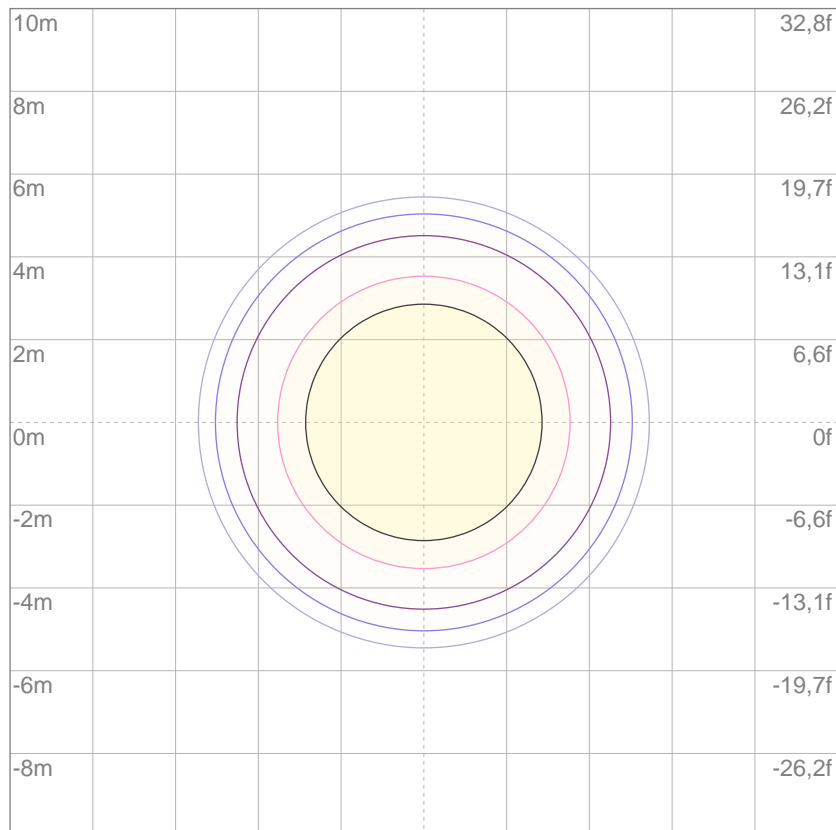
| | |
|-----|----------|
| 10% | 1447 cd |
| 20% | 2894 cd |
| 30% | 4342 cd |
| 40% | 5789 cd |
| 50% | 7236 cd |
| 60% | 8683 cd |
| 70% | 10131 cd |
| 80% | 11578 cd |

Conditions:

Number of c-planes: 2

Candela at center: 14472 cd

ISO LUX DIAGRAM



| | |
|-----|---------|
| 3% | 4,34 lx |
| 5% | 7,24 lx |
| 10% | 14,5 lx |
| 30% | 43,4 lx |
| 50% | 72,4 lx |

Conditions:

Number of c-planes: 2

Lux at center: 145 lx

Lux distribution on a surface when lamp is mounted at 10 meters from the surface.



Total lumen output:

2859 lm

Peak candela output:

32315 cd

Light quality:

CRI: 97,7

Color temperature:

3065 K

PRODUCT NAME:

ECLFRESNELJTU

MEASURAMENT CONDITIONS:

Beam angle:

Min Zoom

Target:

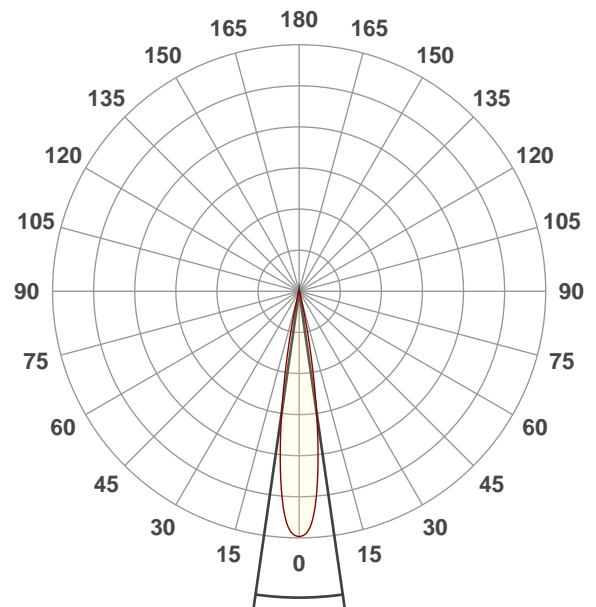
Warm White

Operator:

Paolo Carvone

Date and time:

07/02/2020 11:05:54

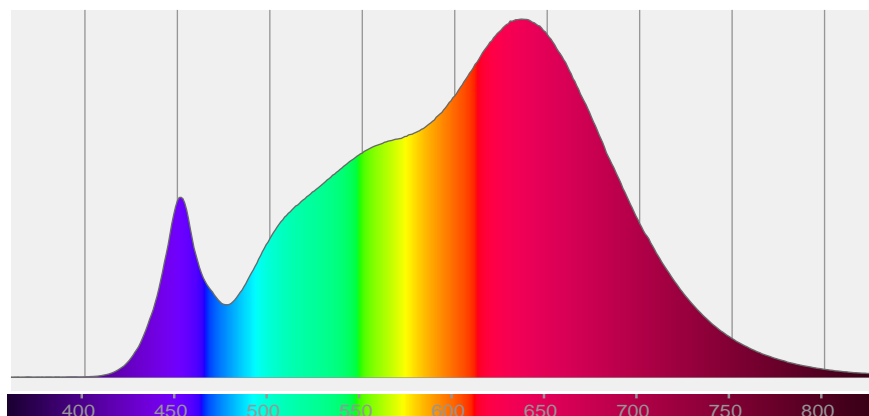


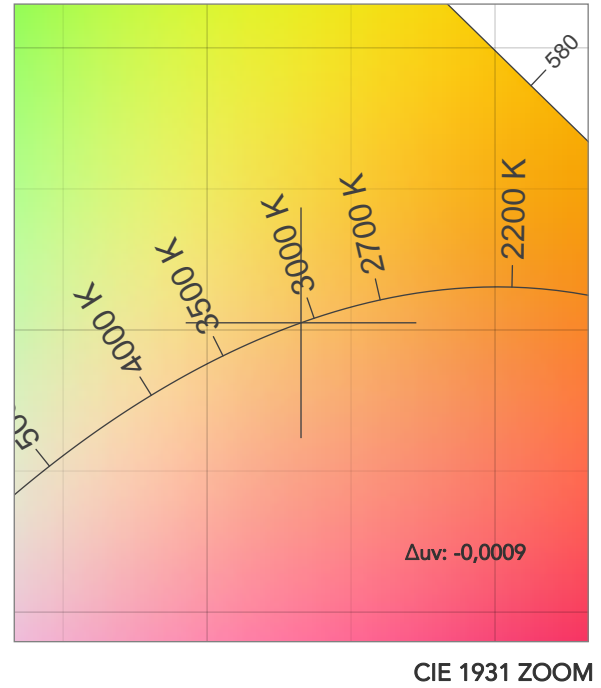
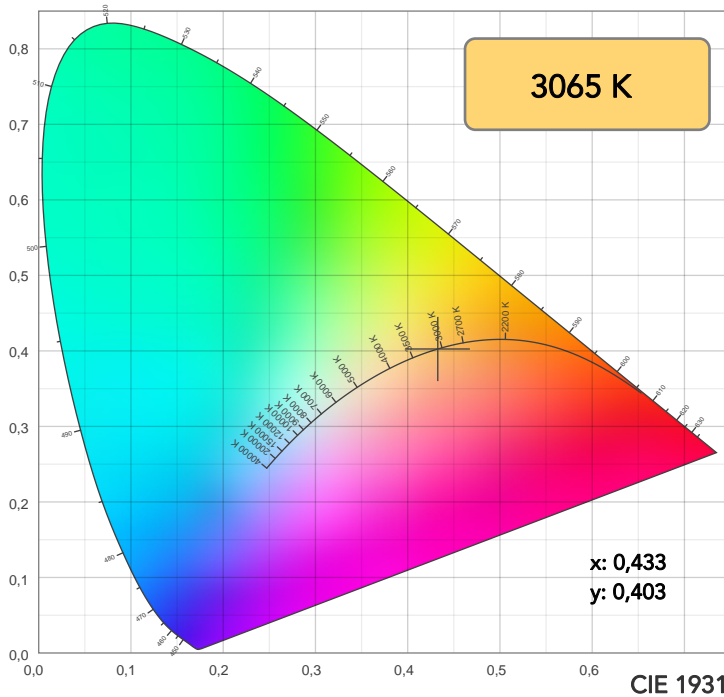
Beam angle 50%: 16,4°

Field angle 10%: 25,7°

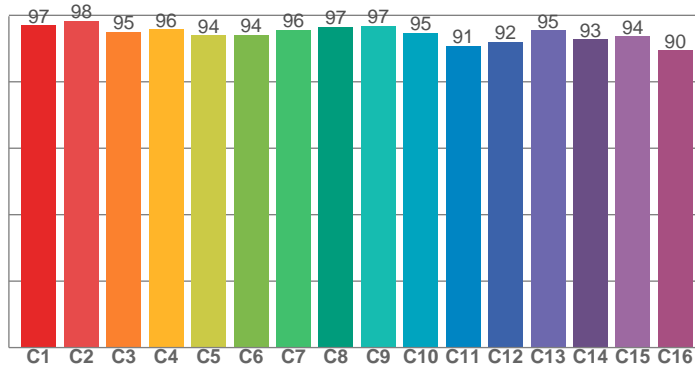
Cut off angle 2.5%: 32°

Spectra

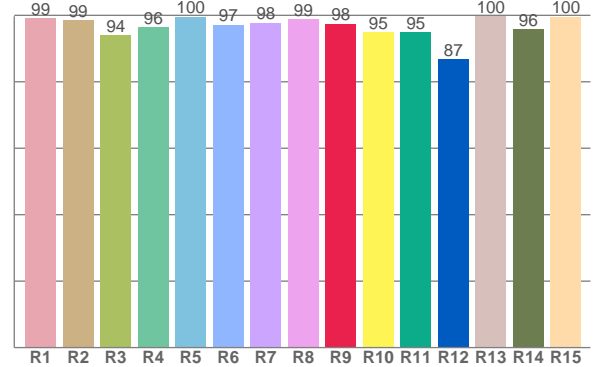




TM30: 94,7



CRI: 97,7 (R1-R8)



CRI R values, only R1-R8 are used to calculate final CRI value

| R1 | R2 | R3 | R4 | R5 | R6 | R7 | R8 | R9 | R10 | R11 | R12 | R13 | R14 | R15 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 99,2 | 98,5 | 94,0 | 96,4 | 99,5 | 97,2 | 97,8 | 98,8 | 97,5 | 95,0 | 94,9 | 86,8 | 99,7 | 95,7 | 99,5 |

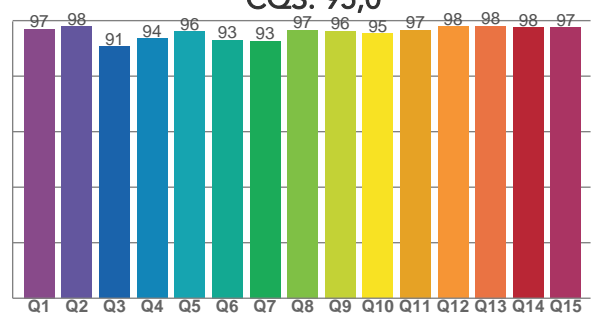
TM30 C values, 16 binned values out of total of 99 C values

| C1 | C2 | C3 | C4 | C5 | C6 | C7 | C8 | C9 | C10 | C11 | C12 | C13 | C14 | C15 | C16 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 97,0 | 98,3 | 95,1 | 95,8 | 94,0 | 94,1 | 95,6 | 96,6 | 96,9 | 94,6 | 90,8 | 92,0 | 95,5 | 92,7 | 93,7 | 89,5 |

CQS Q values

| Q1 | Q2 | Q3 | Q4 | Q5 | Q6 | Q7 | Q8 | Q9 | Q10 | Q11 | Q12 | Q13 | Q14 | Q15 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 96,9 | 97,9 | 90,7 | 93,5 | 96,0 | 93,0 | 92,6 | 96,6 | 96,3 | 95,4 | 96,6 | 97,9 | 98,1 | 97,5 | 97,5 |

CQS: 95,0



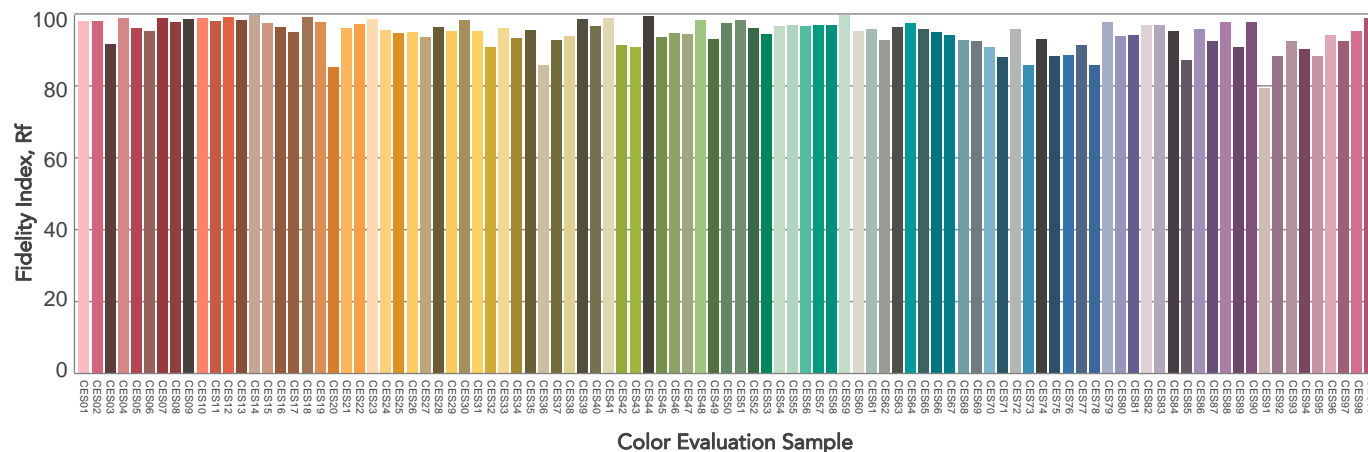
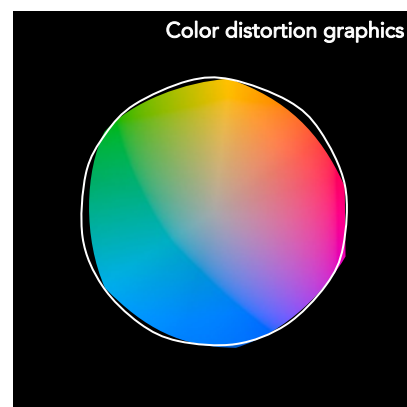
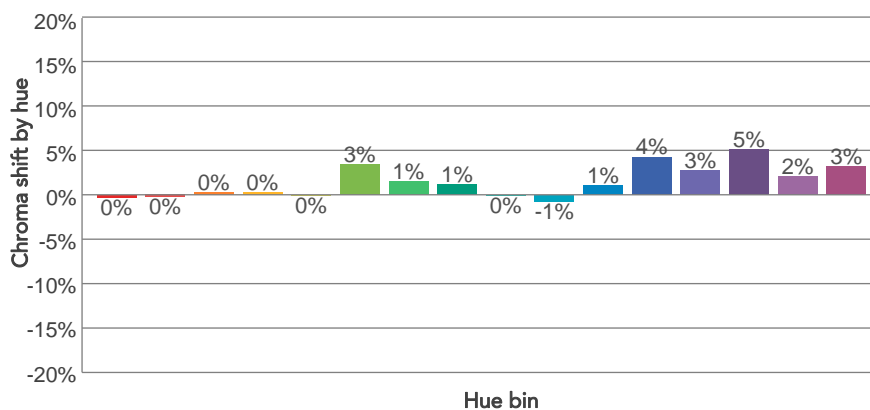
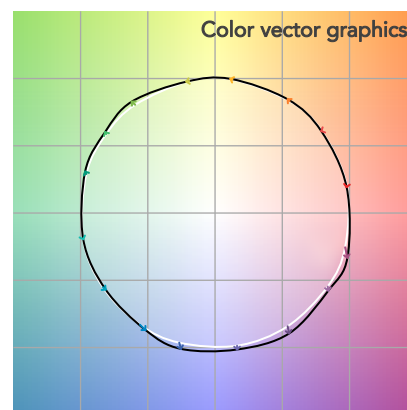
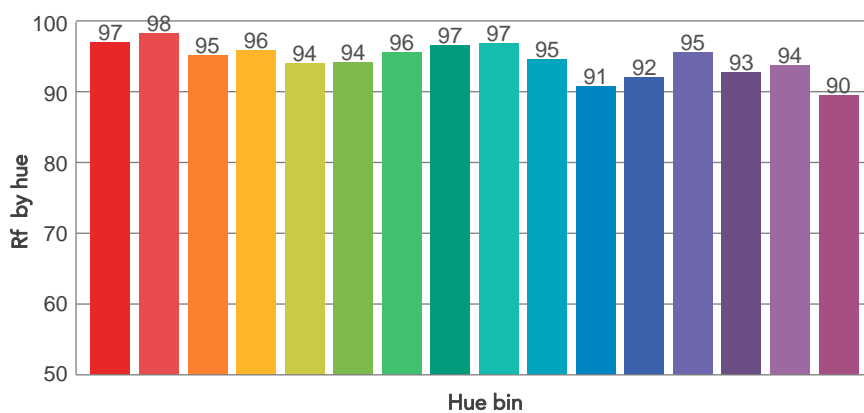
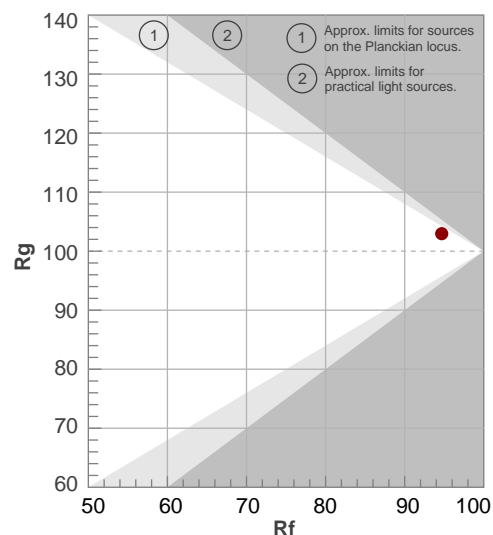
COLOR PARAMETERS

| Color temperature | Color rendering index | Red component | Color fidelity | Color gamut | Color quality scale | Television lighting index | Color coordinate cie 1931 | Color coordinate cie 1931 | Color deviation from black body |
|-------------------|-----------------------|---------------|----------------|-------------|---------------------|---------------------------|---------------------------|---------------------------|---------------------------------|
| CCT | CRI | CRI R9 | TM30 Rf | TM30 Rg | CQS | TLCI | x | y | Δuv |
| 3065 K | 97,7 | 97,5 | 94,7 | 103,0 | 95,0 | 98 | 0,433 | 0,403 | -0,0009 |

Fidelity index R_f

Gammut index

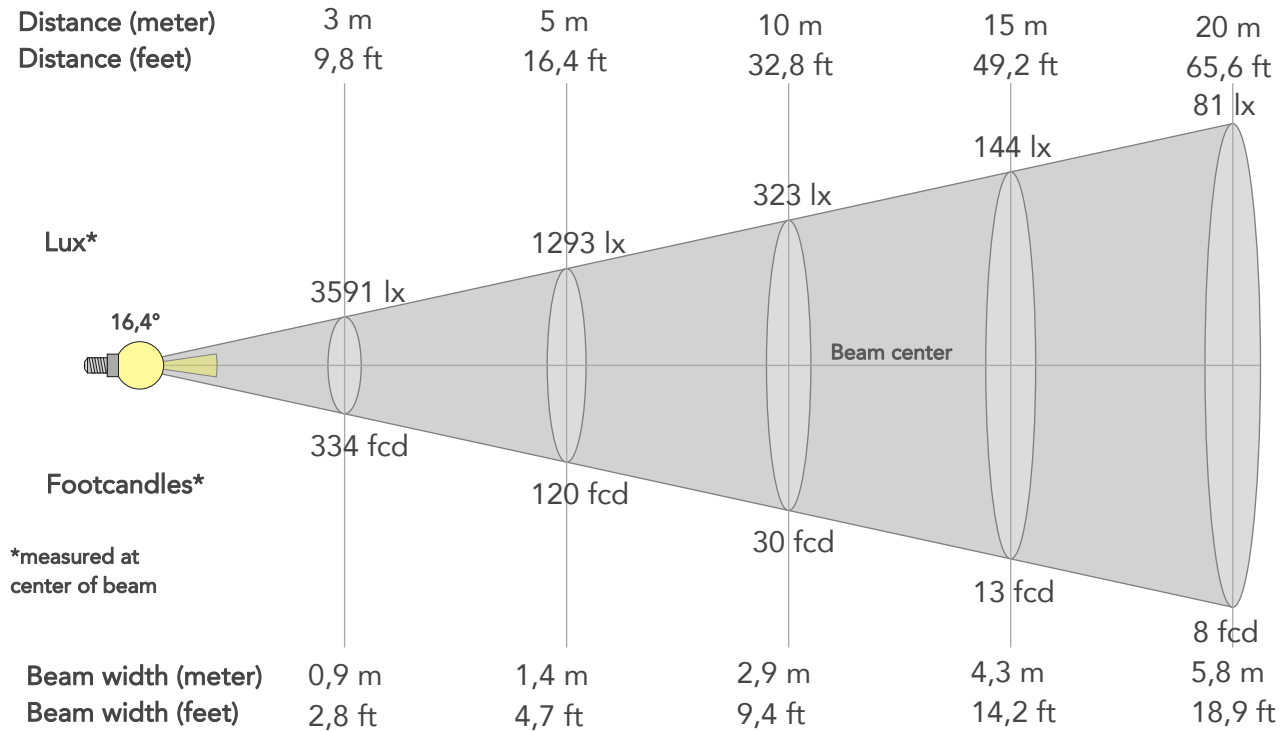
| | | Graphic shifts (%) | |
|---------|-------|--------------------|-----|
| Hue Bin | R_f | Chroma | Hue |
| 1 | 97 | 0% | -1% |
| 2 | 98 | 0% | 0% |
| 3 | 95 | 0% | 2% |
| 4 | 96 | 0% | 2% |
| 5 | 94 | 0% | 2% |
| 6 | 94 | 3% | 1% |
| 7 | 96 | 1% | -1% |
| 8 | 97 | 1% | -2% |
| 9 | 97 | 0% | 0% |
| 10 | 95 | -1% | 2% |
| 11 | 91 | 1% | 6% |
| 12 | 92 | 4% | 2% |
| 13 | 95 | 3% | -1% |
| 14 | 93 | 5% | -2% |
| 15 | 94 | 2% | -2% |
| 16 | 90 | 3% | -7% |



BEAM DETAILS



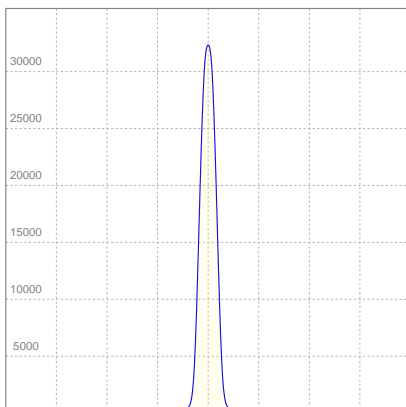
| Beam angle 50% | Field angle 10% | Cut off angle 2,5% | Intensity ratio in 120° cone | Intensity ratio in 90° cone |
|----------------|-----------------|--------------------|------------------------------|-----------------------------|
| 16,4° | 25,7° | 32° | 98,4% | 96,1% |



BEAM INTENSITIES AND WIDTHS

| Distance | 1m | 2m | 3m | 4m | 5m | 7,5m | 10m | 15m | 20m | 25m | 30m | 40m | 50m |
|-----------|---------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|---------|--------|
| Distance | 3,3ft | 6,6ft | 9,8ft | 13,1ft | 16,4ft | 24,6ft | 32,8ft | 49,2ft | 65,6ft | 82ft | 98,4ft | 131,2ft | 164ft |
| Lux | 32315lx | 8079lx | 3591lx | 2020lx | 1293lx | 574lx | 323lx | 144lx | 81lx | 52lx | 36lx | 20lx | 13lx |
| Footcand. | 3002fcd | 751fcd | 334fcd | 188fcd | 120fcd | 53fcd | 30fcd | 13fcd | 8fcd | 5fcd | 3fcd | 2fcd | 1fcd |
| Beam wid. | 0,3m | 0,6m | 0,9m | 1,2m | 1,4m | 2,2m | 2,9m | 4,3m | 5,8m | 7,2m | 8,6m | 11,5m | 14,4m |
| Beam wid. | 0,9ft | 1,9ft | 2,8ft | 3,8ft | 4,7ft | 7,1ft | 9,4ft | 14,2ft | 18,9ft | 23,6ft | 28,3ft | 37,7ft | 47,2ft |

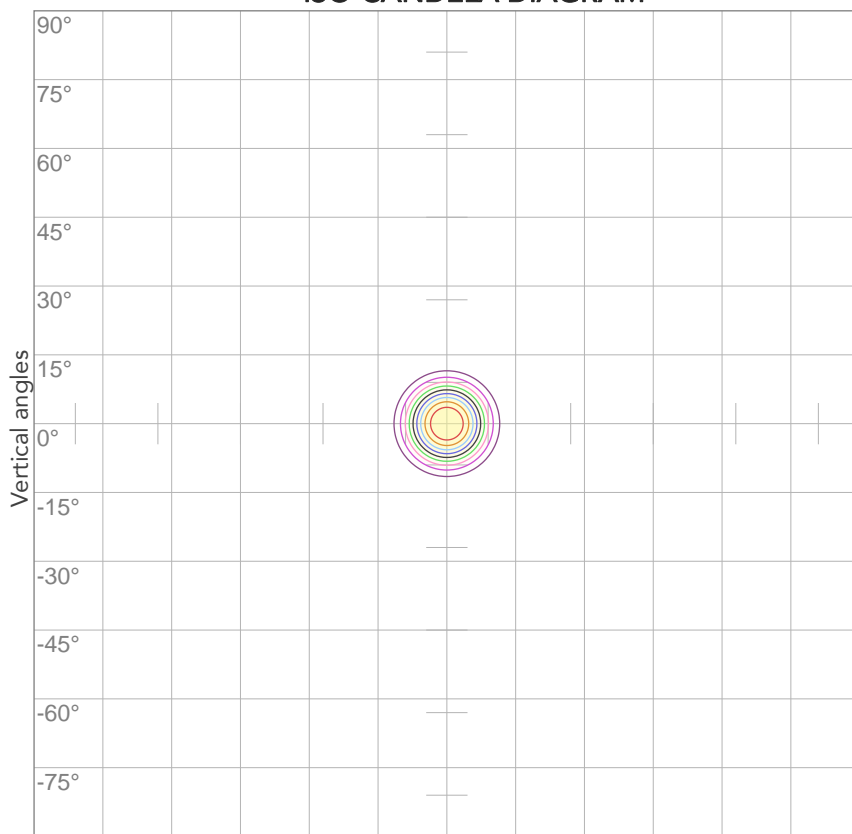
LINEAR DISTRIBUTION DIAGRAM



ELECTRICAL SPECIFICATIONS

| Input voltage | Input current | Input power | Effeciency |
|---------------|---------------|-------------|------------|
| 226V | 0,423A | 90,2W | 32lm/W |
| Power Fc | | | |
| 0,94 | | | |

ISO CANDELA DIAGRAM



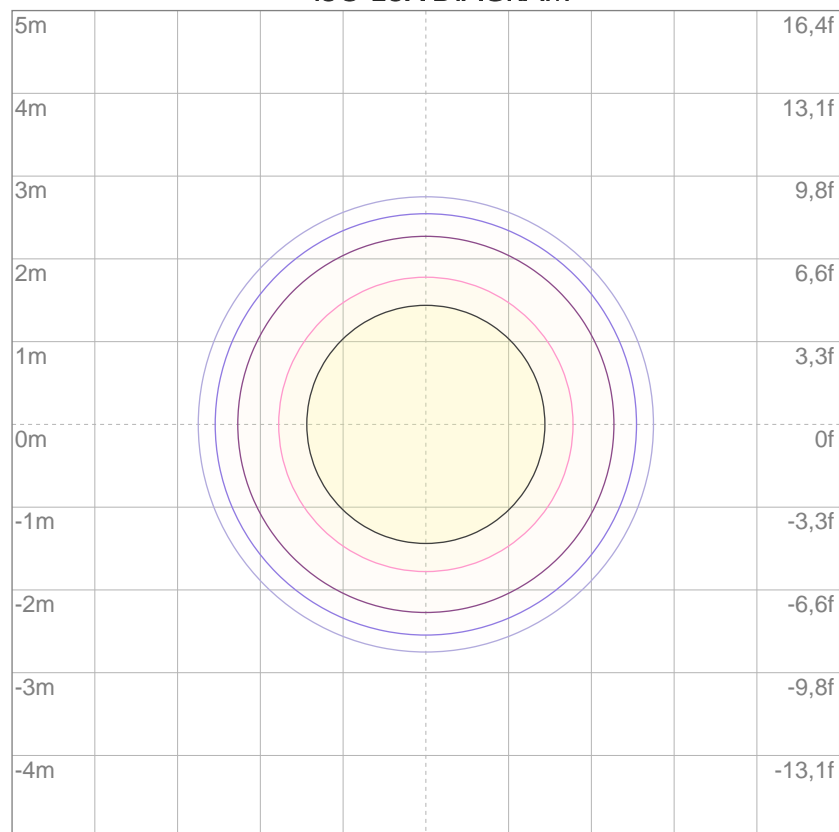
| | |
|-----|----------|
| 10% | 3231 cd |
| 20% | 6463 cd |
| 30% | 9694 cd |
| 40% | 12926 cd |
| 50% | 16157 cd |
| 60% | 19389 cd |
| 70% | 22620 cd |
| 80% | 25852 cd |

Conditions:

Number of c-planes: 2

Candela at center: 32315 cd

ISO LUX DIAGRAM



Mounting height: 10 meters (33 feet)

| | |
|-----|---------|
| 3% | 9,69 lx |
| 5% | 16,2 lx |
| 10% | 32,3 lx |
| 30% | 96,9 lx |
| 50% | 162 lx |

Conditions:

Number of c-planes: 2

Lux at center: 323 lx

Lux distribution on a surface when lamp is mounted at 10 meters from the surface.