

# LM-79

## Test Report

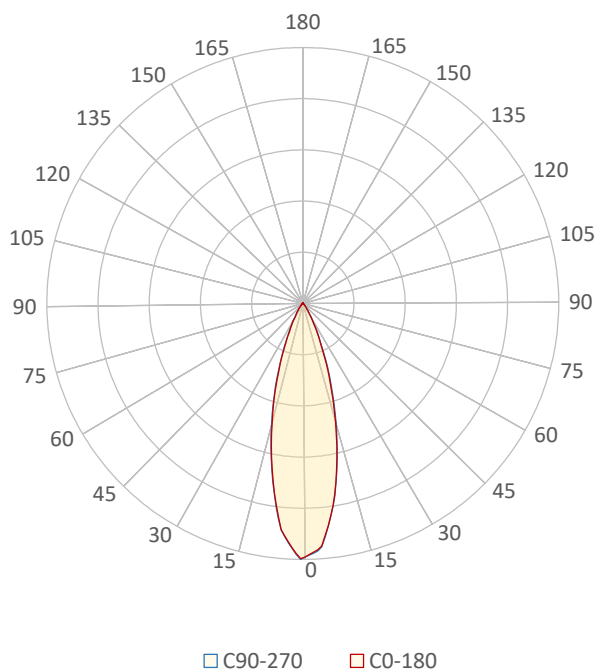
LM79-REVO-XL-3000K-CRI80-30DEG

### General Discription

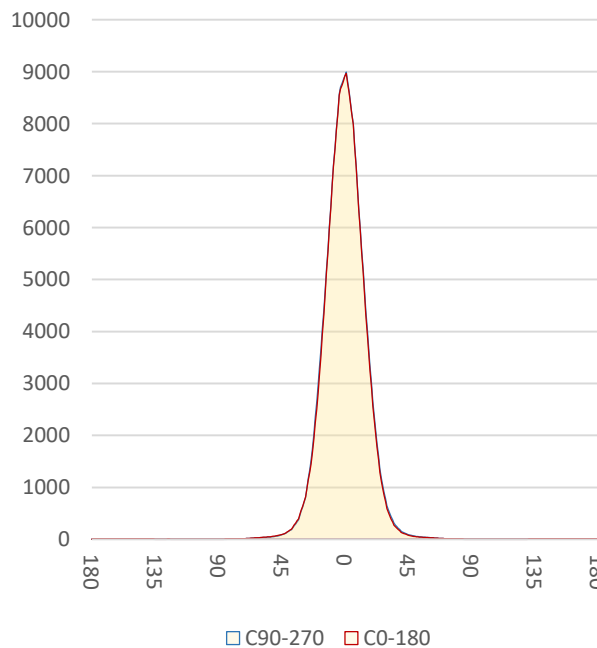
|                   |                    |
|-------------------|--------------------|
| Item number       | RX-1N-33-33        |
| Date and time     | 1-11-2017 11:09:09 |
| CCT (Kelvin)      | 2991 K             |
| Beam angle        | 29,5°              |
| Luminous flux     | 2885 lm            |
| Efficiency        | 76 lm/watt         |
| Weighted energy   | 38,0 kWh/1000h     |
| Power factor      | 0,95               |
| CRI (RA)          | 84,0               |
| Fidelity index Rf | Rf 84,7            |
| Gammut index Rg   | Rg 97,1            |
| Peak              | 9000 cd            |



Polar diagram



Cartesian diagram



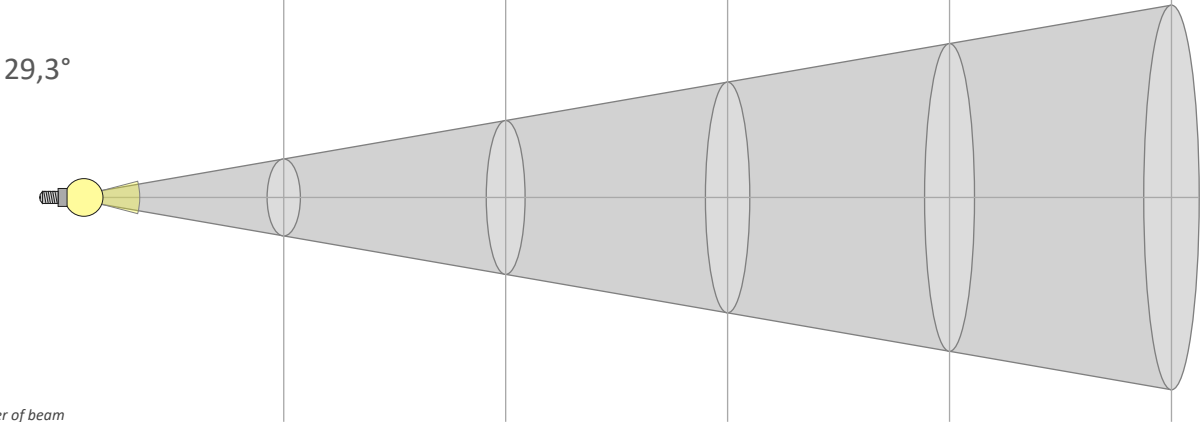
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### LM79-REVO-XL-3000K-CRI80-30DEG

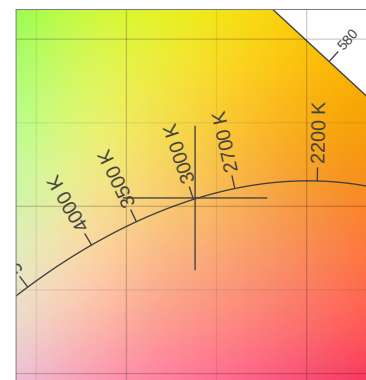
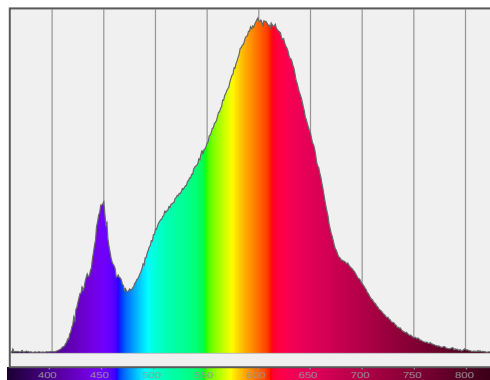
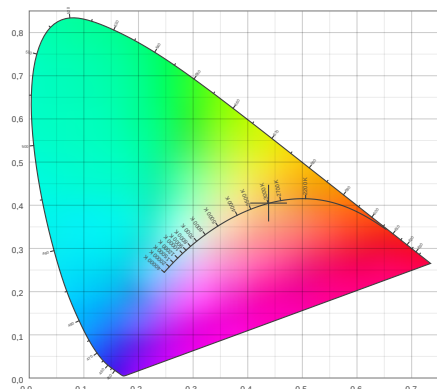
| Beam details                                                                       | 1m        | 2m        | 3m       | 4m       | 5m                     |         |         |         |        |                          |        |        |        |        |                                     |        |        |        |        |                                    |  |  |  |  |
|------------------------------------------------------------------------------------|-----------|-----------|----------|----------|------------------------|---------|---------|---------|--------|--------------------------|--------|--------|--------|--------|-------------------------------------|--------|--------|--------|--------|------------------------------------|--|--|--|--|
| <b>Lux*</b>                                                                        | 8906 lx   | 2227 lx   | 990 lx   | 557 lx   | 356 lx                 |         |         |         |        |                          |        |        |        |        |                                     |        |        |        |        |                                    |  |  |  |  |
|  |           |           |          |          |                        |         |         |         |        |                          |        |        |        |        |                                     |        |        |        |        |                                    |  |  |  |  |
| <small>*measured at center of beam</small>                                         |           |           |          |          |                        |         |         |         |        |                          |        |        |        |        |                                     |        |        |        |        |                                    |  |  |  |  |
| <b>Footcandles*</b>                                                                | 827,4 fcd | 206,9 fcd | 91,9 fcd | 51,7 fcd | 33,1 fcd               |         |         |         |        |                          |        |        |        |        |                                     |        |        |        |        |                                    |  |  |  |  |
| <b>Beam width (meter)</b>                                                          | 0,5 m     | 1 m       | 1,6 m    | 2,1 m    | 2,6 m                  |         |         |         |        |                          |        |        |        |        |                                     |        |        |        |        |                                    |  |  |  |  |
| <b>Beam width (Feet)</b>                                                           | 1,7 ft    | 3,4 ft    | 5,2 ft   | 6,9 ft   | 8,6 ft                 |         |         |         |        |                          |        |        |        |        |                                     |        |        |        |        |                                    |  |  |  |  |
| <b>Beam intensities</b>                                                            |           |           |          |          |                        |         |         |         |        |                          |        |        |        |        |                                     |        |        |        |        |                                    |  |  |  |  |
| 1m                                                                                 | 2m        | 3m        | 4m       | 5m       | 6m                     | 7m      | 8m      | 9m      | 10m    | 11m                      | 12m    | 13m    | 14m    | 15m    | 16m                                 | 17m    | 18m    | 19m    | 20m    |                                    |  |  |  |  |
| 8906lx                                                                             | 2227lx    | 990lx     | 557lx    | 356lx    | 247lx                  | 182lx   | 139lx   | 110lx   | 89lx   | 74lx                     | 62lx   | 53lx   | 45lx   | 40lx   | 35lx                                | 31lx   | 27lx   | 25lx   | 22lx   |                                    |  |  |  |  |
| 3,3ft                                                                              | 6,6ft     | 9,8ft     | 13,1ft   | 16,4ft   | 19,7ft                 | 23ft    | 26,2ft  | 29,5ft  | 32,8ft | 36,1ft                   | 39,4ft | 42,7ft | 45,9ft | 49,2ft | 52,5ft                              | 55,8ft | 59,1ft | 62,3ft | 65,6ft |                                    |  |  |  |  |
| 827,4fcd                                                                           | 206,9fcd  | 91,9fcd   | 51,7fcd  | 33,1fcd  | 23fcd                  | 16,9fcd | 12,9fcd | 10,2fcd | 8,3fcd | 6,8fcd                   | 5,7fcd | 4,9fcd | 4,2fcd | 3,7fcd | 3,2fcd                              | 2,9fcd | 2,6fcd | 2,3fcd | 2,1fcd |                                    |  |  |  |  |
| <b>Intensities in 0° c-plane</b>                                                   |           |           |          |          |                        |         |         |         |        |                          |        |        |        |        |                                     |        |        |        |        |                                    |  |  |  |  |
| 0°                                                                                 | 2°        | 4°        | 6°       | 8°       | 10°                    | 12°     | 14°     | 16°     | 18°    | 20°                      | 22°    | 24°    | 26°    | 28°    | 30°                                 | 32°    | 34°    | 36°    | 38°    |                                    |  |  |  |  |
| 8906                                                                               | 8742      | 8544      | 7864     | 7183     | 6394                   | 5547    | 4713    | 3925    | 3138   | 2514                     | 1938   | 1450   | 1133   | 816    | 638                                 | 477    | 353    | 274    | 196    |                                    |  |  |  |  |
| 100%                                                                               | 98%       | 96%       | 88%      | 81%      | 72%                    | 62%     | 53%     | 44%     | 35%    | 28%                      | 22%    | 16%    | 13%    | 9%     | 7%                                  | 5%     | 4%     | 3%     | 2%     |                                    |  |  |  |  |
| <b>Intensities in 90° c-plane</b>                                                  |           |           |          |          |                        |         |         |         |        |                          |        |        |        |        |                                     |        |        |        |        |                                    |  |  |  |  |
| 0°                                                                                 | 2°        | 4°        | 6°       | 8°       | 10°                    | 12°     | 14°     | 16°     | 18°    | 20°                      | 22°    | 24°    | 26°    | 28°    | 30°                                 | 32°    | 34°    | 36°    | 38°    |                                    |  |  |  |  |
| 8906                                                                               | 8777      | 8571      | 7889     | 7207     | 6424                   | 5594    | 4784    | 4041    | 3297   | 2656                     | 2041   | 1518   | 1162   | 806    | 624                                 | 456    | 333    | 259    | 186    |                                    |  |  |  |  |
| 100%                                                                               | 99%       | 96%       | 89%      | 81%      | 72%                    | 63%     | 54%     | 45%     | 37%    | 30%                      | 23%    | 17%    | 13%    | 9%     | 7%                                  | 5%     | 4%     | 3%     | 2%     |                                    |  |  |  |  |
| <b>Intensities in 180° c-plane</b>                                                 |           |           |          |          |                        |         |         |         |        |                          |        |        |        |        |                                     |        |        |        |        |                                    |  |  |  |  |
| 0°                                                                                 | 2°        | 4°        | 6°       | 8°       | 10°                    | 12°     | 14°     | 16°     | 18°    | 20°                      | 22°    | 24°    | 26°    | 28°    | 30°                                 | 32°    | 34°    | 36°    | 38°    |                                    |  |  |  |  |
| 8906                                                                               | 8785      | 8389      | 7980     | 7155     | 6330                   | 5519    | 4717    | 3933    | 3247   | 2561                     | 2016   | 1528   | 1103   | 847    | 590                                 | 449    | 331    | 239    | 188    |                                    |  |  |  |  |
| 100%                                                                               | 99%       | 94%       | 90%      | 80%      | 71%                    | 62%     | 53%     | 44%     | 36%    | 29%                      | 23%    | 17%    | 12%    | 10%    | 7%                                  | 5%     | 4%     | 3%     | 2%     |                                    |  |  |  |  |
| <b>Intensities in 270° c-plane</b>                                                 |           |           |          |          |                        |         |         |         |        |                          |        |        |        |        |                                     |        |        |        |        |                                    |  |  |  |  |
| 0°                                                                                 | 2°        | 4°        | 6°       | 8°       | 10°                    | 12°     | 14°     | 16°     | 18°    | 20°                      | 22°    | 24°    | 26°    | 28°    | 30°                                 | 32°    | 34°    | 36°    | 38°    |                                    |  |  |  |  |
| 8906                                                                               | 8819      | 8412      | 8003     | 7187     | 6371                   | 5576    | 4797    | 4030    | 3340   | 2649                     | 2094   | 1600   | 1165   | 905    | 645                                 | 495    | 372    | 273    | 216    |                                    |  |  |  |  |
| 100%                                                                               | 99%       | 94%       | 90%      | 81%      | 72%                    | 63%     | 54%     | 45%     | 37%    | 30%                      | 24%    | 18%    | 13%    | 10%    | 7%                                  | 6%     | 4%     | 3%     | 2%     |                                    |  |  |  |  |
| <b>Beam angle 50%</b>                                                              |           |           |          |          | <b>Field angle 10%</b> |         |         |         |        | <b>Cutoff angle 2,5%</b> |        |        |        |        | <b>Intensity ratio in 120° cone</b> |        |        |        |        | <b>Intensity ratio in 90° cone</b> |  |  |  |  |
| 29,3°                                                                              |           |           |          |          | 55,3°                  |         |         |         |        |                          |        |        |        |        |                                     |        |        |        |        |                                    |  |  |  |  |

# LM-79

## Test Report

LM79-REVO-XL-3000K-CRI80-30DEG

### Color details



CIE 1931

x: 0,438

2991 K

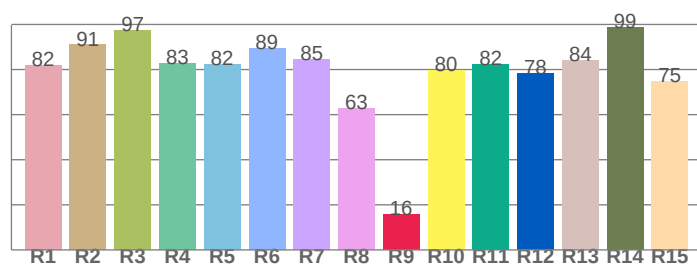
y: 0,405

Spectra

CIE 1931 ZOOM

$\Delta uv$ : 0,0002

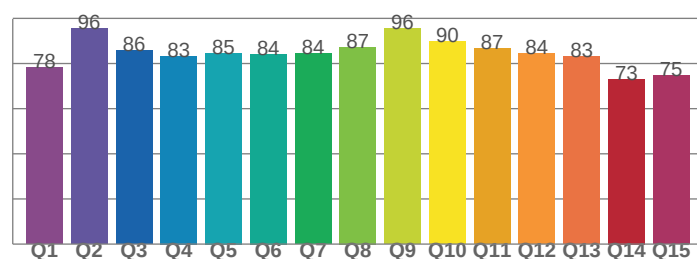
CRI: **84,0** (R1-R8)



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

| R1   | R2   | R3   | R4   | R5   | R6   | R7   | R8   |
|------|------|------|------|------|------|------|------|
| 82,0 | 90,9 | 97,3 | 82,8 | 82,5 | 89,4 | 84,6 | 62,9 |
| R9   | R10  | R11  | R12  | R13  | R14  | R15  |      |
| 15,6 | 79,7 | 82,2 | 78,4 | 83,9 | 98,8 | 74,8 |      |

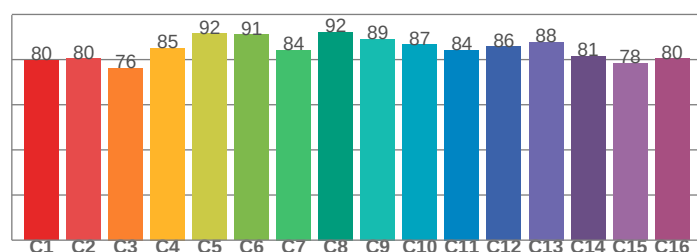
CQS: **83,4**



CQS values

| Q1   | Q2   | Q3   | Q4   | Q5   | Q6   | Q7   | Q8   |
|------|------|------|------|------|------|------|------|
| 78,1 | 95,7 | 85,7 | 83,4 | 84,6 | 84,2 | 84,3 | 87,3 |
| Q9   | Q10  | Q11  | Q12  | Q13  | Q14  | Q15  |      |
| 95,6 | 89,8 | 86,8 | 84,3 | 83,3 | 73,2 | 74,7 |      |

TM30: **84,7**



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

| C1   | C2   | C3   | C4   | C5   | C6   | C7   | C8   |
|------|------|------|------|------|------|------|------|
| 79,7 | 80,4 | 76,3 | 85,2 | 91,6 | 91,2 | 84,3 | 92,3 |
| C9   | C10  | C11  | C12  | C13  | C14  | C15  |      |
| 89,1 | 86,8 | 84,3 | 85,7 | 87,8 | 81,5 | 78,4 |      |

### Color parameters

| Color temperature | Color rendering index | Red component | Color fidelity | Color gamut | Color quality scale | Color coordinate cie 1931 | Color coordinate cie 1931 | Color coordinate | Color coordinate | Color deviation from black body |
|-------------------|-----------------------|---------------|----------------|-------------|---------------------|---------------------------|---------------------------|------------------|------------------|---------------------------------|
| CCT               | CRI                   | CRI R9        | TM30 Rf        | TM30 Rg     | CQS                 | x                         | y                         | u                | v                | $\Delta uv$                     |
| 2991 K            | 84,0                  | 15,6          | 84,7           | 97,1        | 83,4                | 0,438                     | 0,405                     | 0,251            | 0,348            | 0,0002                          |



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LM79-REVO-XL-3000K-CRI80-30DEG

### TM30 details

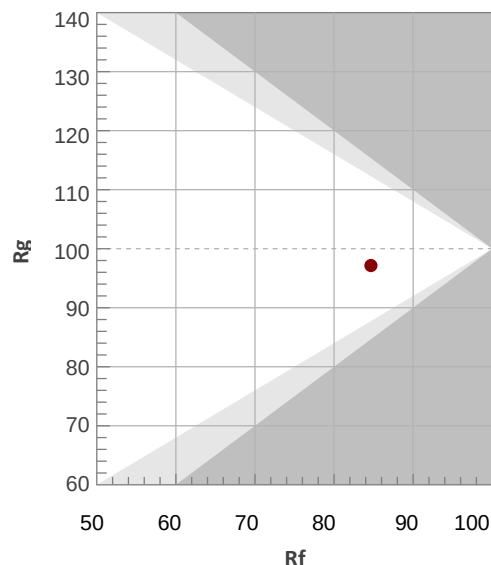
Rf 84,7

Fidelity index Rf

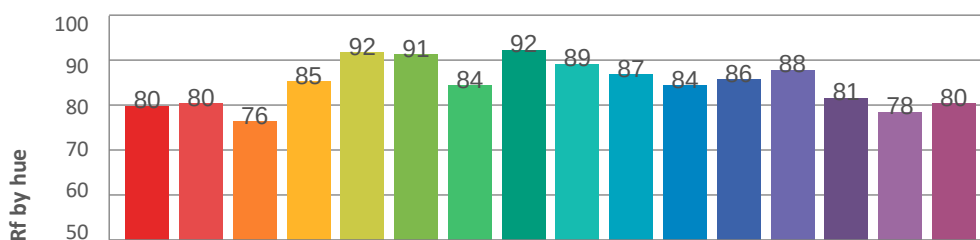
Rg 97,1

Gamut index Rg

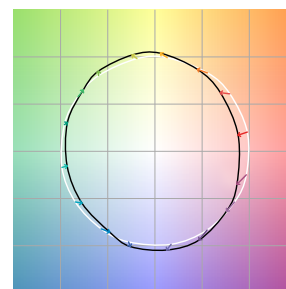
| Hue Bin | R <sub>f</sub> | Graphic shifts (%) |      |
|---------|----------------|--------------------|------|
|         |                | Chroma             | Hue  |
| 1       | 80             | -10%               | -1%  |
| 2       | 80             | -8%                | 7%   |
| 3       | 76             | -3%                | 11%  |
| 4       | 85             | 3%                 | 8%   |
| 5       | 92             | 5%                 | 4%   |
| 6       | 91             | 4%                 | -3%  |
| 7       | 84             | -1%                | -9%  |
| 8       | 92             | -3%                | -3%  |
| 9       | 89             | -6%                | 0%   |
| 10      | 87             | -5%                | 5%   |
| 11      | 84             | -2%                | 9%   |
| 12      | 86             | 4%                 | 3%   |
| 13      | 88             | 5%                 | -6%  |
| 14      | 81             | 4%                 | -13% |
| 15      | 78             | -2%                | -13% |
| 16      | 80             | -8%                | -12% |



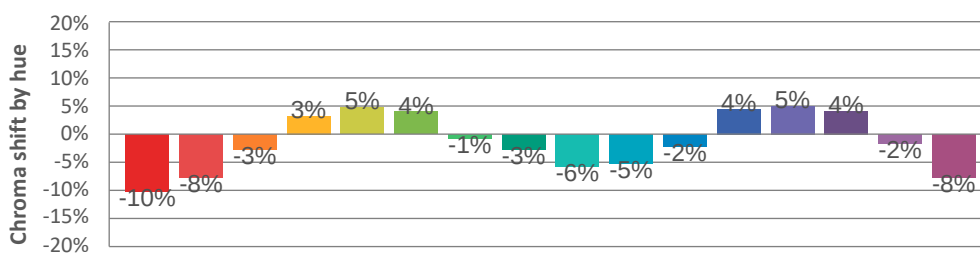
### Hue binH



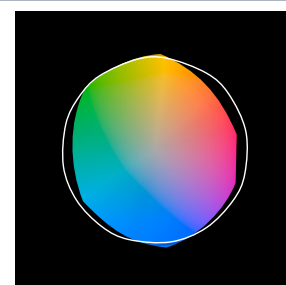
### Color vector graphics



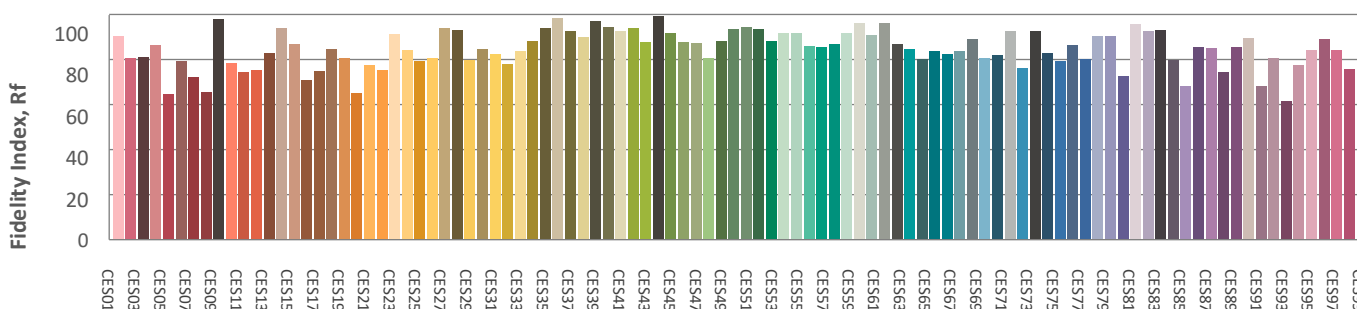
### Hue bin



### Color distortion graphics



### Color Evaluation Sample



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## Glare Evaluation According to UGR

|                                                                 |     |                                                |      |      |      |      |                                         |      |      |      |      |
|-----------------------------------------------------------------|-----|------------------------------------------------|------|------|------|------|-----------------------------------------|------|------|------|------|
| p Ceiling                                                       |     | 70                                             | 70   | 50   | 50   | 30   | 70                                      | 70   | 50   | 50   | 30   |
| p Walls                                                         |     | 50                                             | 30   | 50   | 30   | 30   | 50                                      | 30   | 50   | 30   | 30   |
| p Floor                                                         |     | 20                                             | 20   | 20   | 20   | 20   | 20                                      | 20   | 20   | 20   | 20   |
| Room size<br>X Y                                                |     | Viewing direction at right angles to lamp axis |      |      |      |      | Viewing direction parallel to lamp axis |      |      |      |      |
| 2H                                                              | 2H  | 13,4                                           | 14,0 | 13,6 | 14,2 | 14,4 | 12,9                                    | 13,6 | 13,2 | 13,8 | 14,0 |
|                                                                 | 3H  | 13,7                                           | 14,3 | 14,0 | 14,6 | 14,8 | 13,3                                    | 13,9 | 13,6 | 14,1 | 14,4 |
|                                                                 | 4H  | 13,8                                           | 14,4 | 14,1 | 14,6 | 14,9 | 13,4                                    | 14,0 | 13,7 | 14,2 | 14,5 |
|                                                                 | 6H  | 13,8                                           | 14,3 | 14,1 | 14,6 | 14,9 | 13,4                                    | 13,9 | 13,7 | 14,2 | 14,5 |
|                                                                 | 8H  | 13,8                                           | 14,3 | 14,1 | 14,6 | 14,9 | 13,4                                    | 13,9 | 13,7 | 14,2 | 14,5 |
|                                                                 | 12H | 13,8                                           | 14,3 | 14,1 | 14,6 | 14,9 | 13,4                                    | 13,9 | 13,7 | 14,2 | 14,5 |
| 4H                                                              | 2H  | 13,5                                           | 14,1 | 13,8 | 14,3 | 14,6 | 13,0                                    | 13,6 | 13,3 | 13,9 | 14,1 |
|                                                                 | 3H  | 13,9                                           | 14,4 | 14,3 | 14,7 | 15,0 | 13,5                                    | 14,0 | 13,9 | 14,3 | 14,6 |
|                                                                 | 4H  | 14,0                                           | 14,5 | 14,4 | 14,8 | 15,2 | 13,7                                    | 14,1 | 14,1 | 14,4 | 14,8 |
|                                                                 | 6H  | 14,1                                           | 14,5 | 14,5 | 14,8 | 15,2 | 13,7                                    | 14,1 | 14,1 | 14,5 | 14,9 |
|                                                                 | 8H  | 14,1                                           | 14,4 | 14,5 | 14,8 | 15,2 | 13,7                                    | 14,1 | 14,2 | 14,4 | 14,8 |
|                                                                 | 12H | 14,1                                           | 14,4 | 14,6 | 14,8 | 15,2 | 13,7                                    | 14,0 | 14,2 | 14,4 | 14,8 |
| 8H                                                              | 4H  | 14,0                                           | 14,4 | 14,5 | 14,7 | 15,2 | 13,7                                    | 14,0 | 14,1 | 14,4 | 14,8 |
|                                                                 | 6H  | 14,1                                           | 14,4 | 14,6 | 14,8 | 15,3 | 13,8                                    | 14,0 | 14,2 | 14,4 | 14,9 |
|                                                                 | 8H  | 14,2                                           | 14,4 | 14,6 | 14,8 | 15,3 | 13,8                                    | 14,0 | 14,3 | 14,4 | 14,9 |
|                                                                 | 12H | 14,2                                           | 14,3 | 14,7 | 14,8 | 15,3 | 13,8                                    | 13,9 | 14,3 | 14,4 | 14,9 |
| 12H                                                             | 4H  | 14,0                                           | 14,3 | 14,5 | 14,7 | 15,1 | 13,7                                    | 13,9 | 14,1 | 14,3 | 14,8 |
|                                                                 | 6H  | 14,1                                           | 14,3 | 14,6 | 14,8 | 15,2 | 13,7                                    | 13,9 | 14,2 | 14,4 | 14,9 |
|                                                                 | 8H  | 14,1                                           | 14,3 | 14,6 | 14,8 | 15,3 | 13,8                                    | 13,9 | 14,3 | 14,4 | 14,9 |
| Variation of the observer position for the luminaire distance S |     |                                                |      |      |      |      |                                         |      |      |      |      |
| S = 1,0H                                                        |     | +2,8 / -1,8                                    |      |      |      |      | +2,8 / -1,9                             |      |      |      |      |
| S = 1,5H                                                        |     | +4,9 / -2,4                                    |      |      |      |      | +5,0 / -2,5                             |      |      |      |      |
| S = 2,0H                                                        |     | +6,7 / -3,0                                    |      |      |      |      | +6,7 / -3,1                             |      |      |      |      |
| Standard table                                                  |     | BK02                                           |      |      |      |      | BK02                                    |      |      |      |      |
| Correction summand                                              |     | -3,6                                           |      |      |      |      | -4,0                                    |      |      |      |      |
| Corrected glare indices referring to 2885lm total luminous flux |     |                                                |      |      |      |      |                                         |      |      |      |      |