

# LM-79

## Test Report

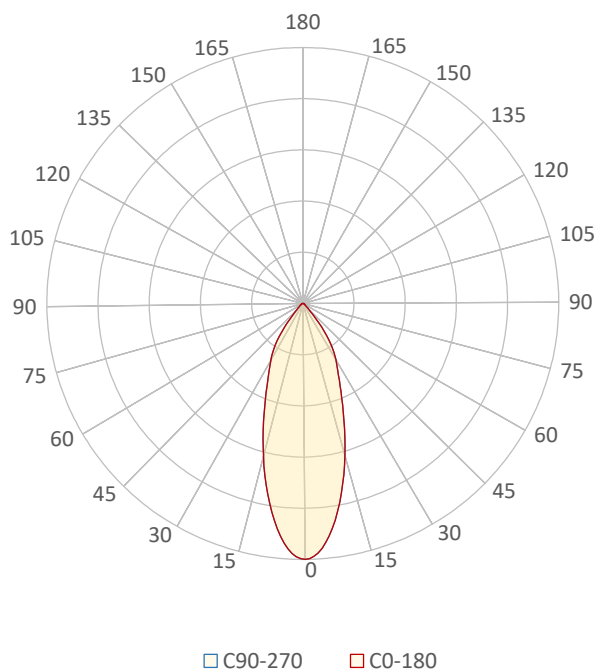
### LM79-JADE-HP-3500K-CRI95-MEDIUM

#### General Discription

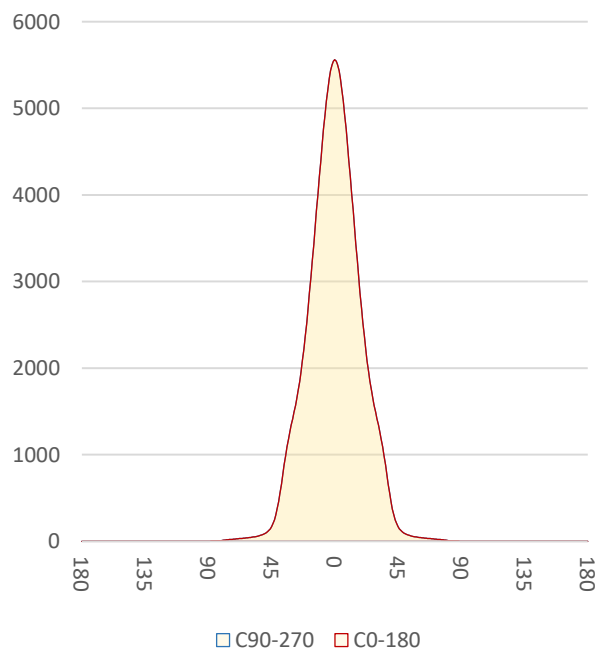
|                   |                    |
|-------------------|--------------------|
| Item number       |                    |
| Date and time     | 22-1-2021 16:31:13 |
| CCT (Kelvin)      | 3384 K             |
| Beam angle        | 37°                |
| Luminous flux     | 3141 lm            |
| Efficiency        | 80 lm/watt         |
| Weighted energy   | 39,5 kWh/1000h     |
| Power factor      | 0,98               |
| CRI (RA)          | 97,0               |
| Fidelity index Rf | Rf 94,8            |
| Gammut index Rg   | Rg 103,6           |
| Peak              | 5562 cd            |



Polar diagram



Cartesian diagram



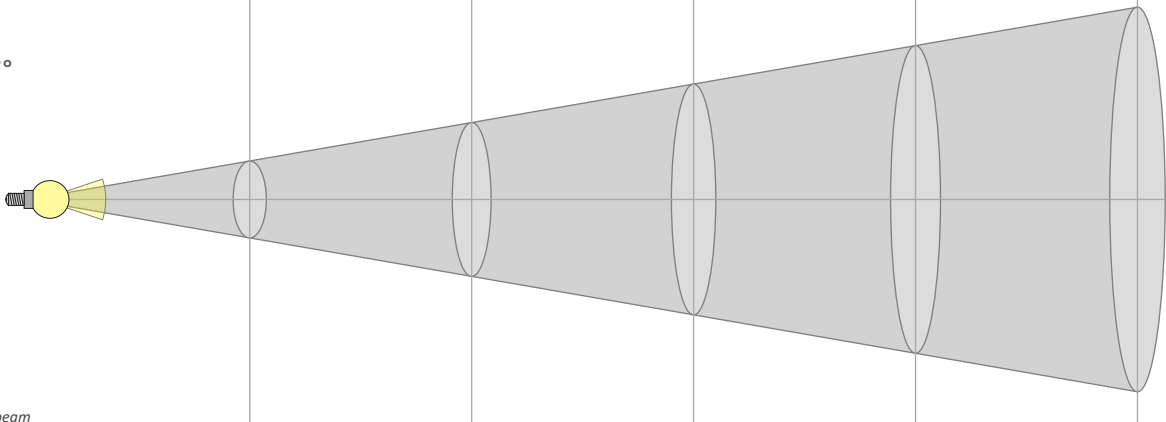
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| Beam details                                                                                                |          | 1m        |         | 2m              |         | 3m       |        | 4m                |        | 5m       |        |                              |        |        |        |                             |        |        |        |
|-------------------------------------------------------------------------------------------------------------|----------|-----------|---------|-----------------|---------|----------|--------|-------------------|--------|----------|--------|------------------------------|--------|--------|--------|-----------------------------|--------|--------|--------|
| Lux*                                                                                                        |          | 5562 lx   |         | 1390 lx         |         | 618 lx   |        | 348 lx            |        | 222 lx   |        |                              |        |        |        |                             |        |        |        |
| <div><div>37°</div></div> |          |           |         |                 |         |          |        |                   |        |          |        |                              |        |        |        |                             |        |        |        |
| *measured at center of beam                                                                                 |          |           |         |                 |         |          |        |                   |        |          |        |                              |        |        |        |                             |        |        |        |
| Footcandles*                                                                                                |          | 516,7 fcd |         | 129,2 fcd       |         | 57,4 fcd |        | 32,3 fcd          |        | 20,7 fcd |        |                              |        |        |        |                             |        |        |        |
| Beam width (meter)                                                                                          |          | 0,7 m     |         | 1,3 m           |         | 2 m      |        | 2,7 m             |        | 3,3 m    |        |                              |        |        |        |                             |        |        |        |
| Beam width (Feet)                                                                                           |          | 2,2 ft    |         | 4,4 ft          |         | 6,6 ft   |        | 8,8 ft            |        | 11 ft    |        |                              |        |        |        |                             |        |        |        |
| Beam intensities                                                                                            |          |           |         |                 |         |          |        |                   |        |          |        |                              |        |        |        |                             |        |        |        |
| 1m                                                                                                          | 2m       | 3m        | 4m      | 5m              | 6m      | 7m       | 8m     | 9m                | 10m    | 11m      | 12m    | 13m                          | 14m    | 15m    | 16m    | 17m                         | 18m    | 19m    | 20m    |
| 5562lx                                                                                                      | 1390lx   | 618lx     | 348lx   | 222lx           | 154lx   | 114lx    | 87lx   | 69lx              | 56lx   | 46lx     | 39lx   | 33lx                         | 28lx   | 25lx   | 22lx   | 19lx                        | 17lx   | 15lx   | 14lx   |
| 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 |
| 516,7fcd                                                                                                    | 129,2fcd | 57,4fcd   | 32,3fcd | 20,7fcd         | 14,4fcd | 10,5fcd  | 8,1fcd | 6,4fcd            | 5,2fcd | 4,3fcd   | 3,6fcd | 3,1fcd                       | 2,6fcd | 2,3fcd | 2fcd   | 1,8fcd                      | 1,6fcd | 1,4fcd | 1,3fcd |
| Intensities in 0° c-plane                                                                                   |          |           |         |                 |         |          |        |                   |        |          |        |                              |        |        |        |                             |        |        |        |
| 0°                                                                                                          | 2°       | 4°        | 6°      | 8°              | 10°     | 12°      | 14°    | 16°               | 18°    | 20°      | 22°    | 24°                          | 26°    | 28°    | 30°    | 32°                         | 34°    | 36°    | 38°    |
| 5562                                                                                                        | 5504     | 5339      | 5083    | 4760            | 4397    | 4015     | 3625   | 3239              | 2868   | 2523     | 2219   | 1960                         | 1746   | 1570   | 1416   | 1263                        | 1090   | 882    | 659    |
| 100%                                                                                                        | 99%      | 96%       | 91%     | 86%             | 79%     | 72%      | 65%    | 58%               | 52%    | 45%      | 40%    | 35%                          | 31%    | 28%    | 25%    | 23%                         | 20%    | 16%    | 12%    |
| Intensities in 90° c-plane                                                                                  |          |           |         |                 |         |          |        |                   |        |          |        |                              |        |        |        |                             |        |        |        |
| 0°                                                                                                          | 2°       | 4°        | 6°      | 8°              | 10°     | 12°      | 14°    | 16°               | 18°    | 20°      | 22°    | 24°                          | 26°    | 28°    | 30°    | 32°                         | 34°    | 36°    | 38°    |
| 5562                                                                                                        | 5504     | 5339      | 5083    | 4760            | 4397    | 4015     | 3625   | 3239              | 2868   | 2523     | 2219   | 1960                         | 1746   | 1570   | 1416   | 1263                        | 1090   | 882    | 659    |
| 100%                                                                                                        | 99%      | 96%       | 91%     | 86%             | 79%     | 72%      | 65%    | 58%               | 52%    | 45%      | 40%    | 35%                          | 31%    | 28%    | 25%    | 23%                         | 20%    | 16%    | 12%    |
| Intensities in 180° c-plane                                                                                 |          |           |         |                 |         |          |        |                   |        |          |        |                              |        |        |        |                             |        |        |        |
| 0°                                                                                                          | 2°       | 4°        | 6°      | 8°              | 10°     | 12°      | 14°    | 16°               | 18°    | 20°      | 22°    | 24°                          | 26°    | 28°    | 30°    | 32°                         | 34°    | 36°    | 38°    |
| 5562                                                                                                        | 5504     | 5339      | 5083    | 4760            | 4397    | 4015     | 3625   | 3239              | 2868   | 2523     | 2219   | 1960                         | 1746   | 1570   | 1416   | 1263                        | 1090   | 882    | 659    |
| 100%                                                                                                        | 99%      | 96%       | 91%     | 86%             | 79%     | 72%      | 65%    | 58%               | 52%    | 45%      | 40%    | 35%                          | 31%    | 28%    | 25%    | 23%                         | 20%    | 16%    | 12%    |
| Intensities in 270° c-plane                                                                                 |          |           |         |                 |         |          |        |                   |        |          |        |                              |        |        |        |                             |        |        |        |
| 0°                                                                                                          | 2°       | 4°        | 6°      | 8°              | 10°     | 12°      | 14°    | 16°               | 18°    | 20°      | 22°    | 24°                          | 26°    | 28°    | 30°    | 32°                         | 34°    | 36°    | 38°    |
| 5562                                                                                                        | 5504     | 5339      | 5083    | 4760            | 4397    | 4015     | 3625   | 3239              | 2868   | 2523     | 2219   | 1960                         | 1746   | 1570   | 1416   | 1263                        | 1090   | 882    | 659    |
| 100%                                                                                                        | 99%      | 96%       | 91%     | 86%             | 79%     | 72%      | 65%    | 58%               | 52%    | 45%      | 40%    | 35%                          | 31%    | 28%    | 25%    | 23%                         | 20%    | 16%    | 12%    |
| Beam angle 50%                                                                                              |          |           |         | Field angle 10% |         |          |        | Cutoff angle 2,5% |        |          |        | Intensity ratio in 120° cone |        |        |        | Intensity ratio in 90° cone |        |        |        |
| 37°                                                                                                         |          |           |         | 77,9°           |         |          |        | 92,4°             |        |          |        | 98,0%                        |        |        |        | 94,8%                       |        |        |        |



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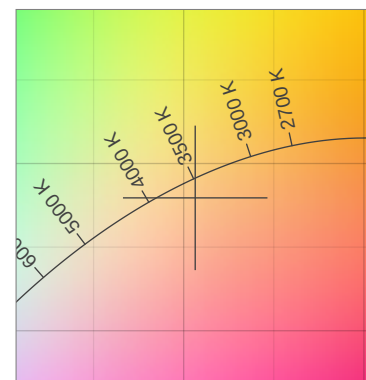
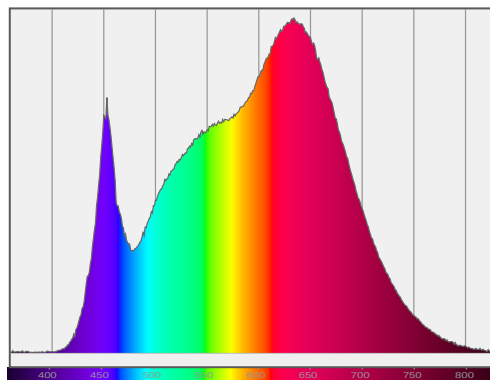
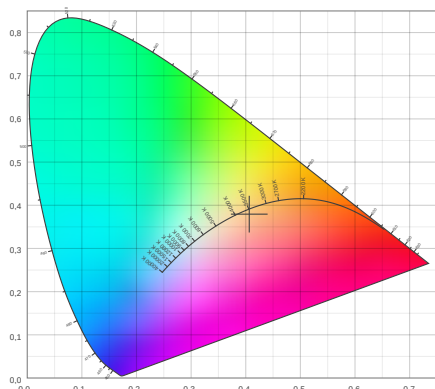
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## LM-79

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## LM79-JADE-HP-3500K-CRI95-MEDIUM

## Color details



CIE 1931

x: 0,406



Spectra

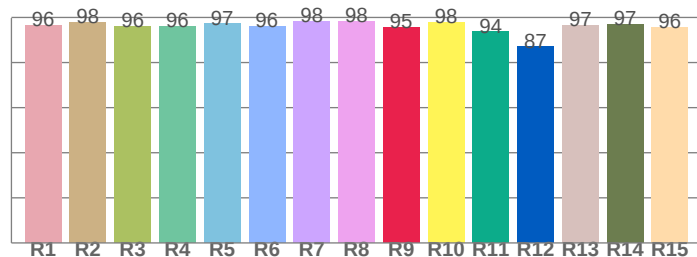
CIE 1931 ZOOM

3384 K

y: 0,379

 $\Delta uv: -0,0052$ 

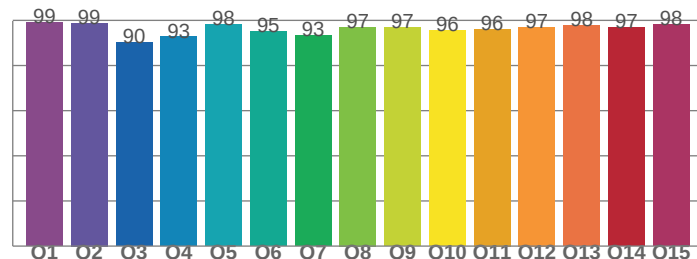
## CRI: 97,0 (R1-R8)



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

| R1   | R2   | R3   | R4   | R5   | R6   | R7   | R8   |
|------|------|------|------|------|------|------|------|
| 96,4 | 98,0 | 96,1 | 95,9 | 97,1 | 95,9 | 98,1 | 98,1 |
| R9   | R10  | R11  | R12  | R13  | R14  | R15  |      |
| 95,5 | 97,7 | 93,6 | 86,9 | 96,5 | 96,9 | 95,7 |      |

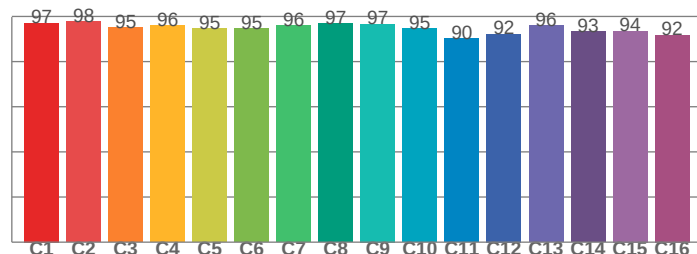
## CQS: 95,4



## CQS values

| Q1   | Q2   | Q3   | Q4   | Q5   | Q6   | Q7   | Q8   |
|------|------|------|------|------|------|------|------|
| 99,1 | 98,8 | 90,1 | 92,7 | 98,0 | 95,0 | 93,4 | 97,1 |
| Q9   | Q10  | Q11  | Q12  | Q13  | Q14  | Q15  |      |
| 97,0 | 95,7 | 96,2 | 97,1 | 97,8 | 96,8 | 98,3 |      |

## TM30: 94,8



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

| C1   | C2   | C3   | C4   | C5   | C6   | C7   | C8   |
|------|------|------|------|------|------|------|------|
| 97,1 | 97,9 | 95,1 | 96,0 | 94,5 | 94,7 | 95,9 | 97,0 |
| C9   | C10  | C11  | C12  | C13  | C14  | C15  |      |
| 96,7 | 94,7 | 90,3 | 92,2 | 96,0 | 93,2 | 93,5 |      |

## 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                | $\Delta uv$                     |
| 3384 K            | 97,0                  | 95,5          | 94,8           | 103,6       | 95,4                | 0,406                     | 0,379                     | 0,241            | 0,338            | -0,0052                         |



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### LM79-JADE-HP-3500K-CRI95-MEDIUM

#### TM30 details

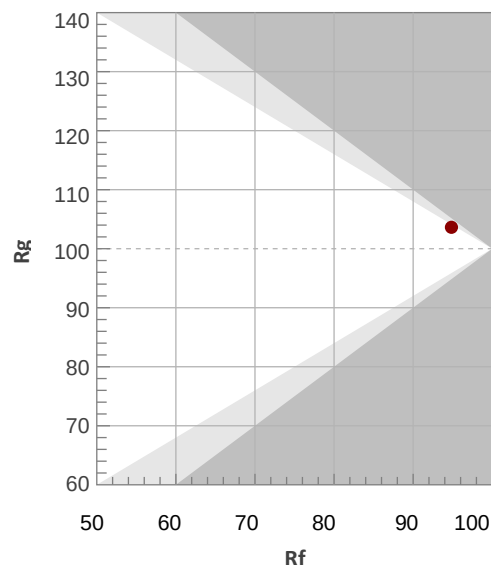
Rf 94,8

Fidelity index Rf

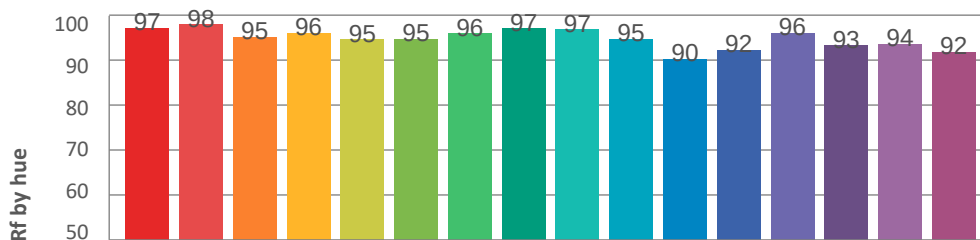
Rg 103,6

Gamut index Rg

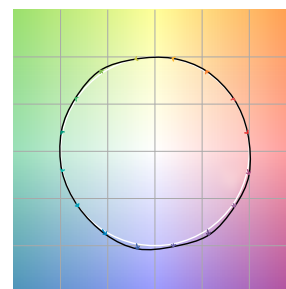
| Hue Bin | R <sub>f</sub> | Graphic shifts (%) |     |
|---------|----------------|--------------------|-----|
|         |                | Chroma             | Hue |
| 1       | 97             | 0%                 | 0%  |
| 2       | 98             | 0%                 | 0%  |
| 3       | 95      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



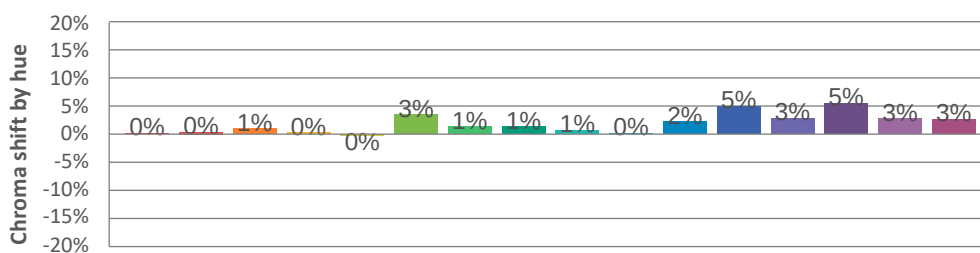
#### Hue binH



#### Color vector graphics



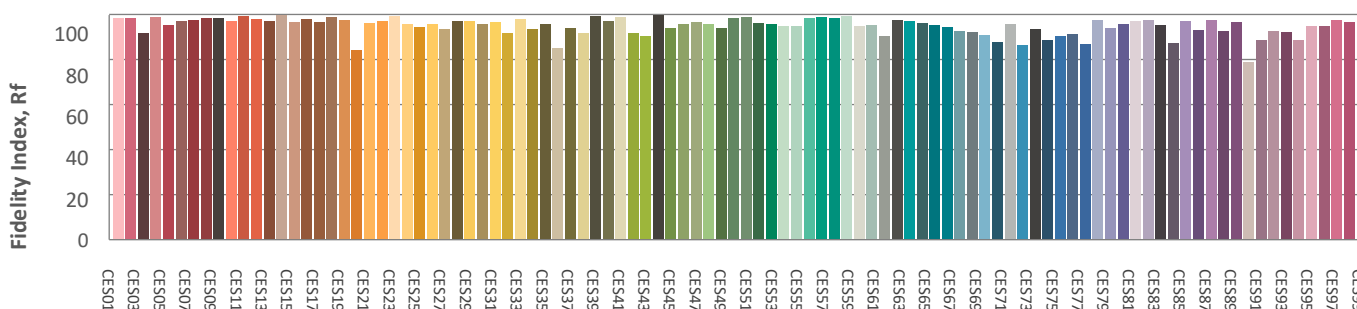
#### Hue bin



#### 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  | 23,3                                           | 23,9 | 23,4 | 24,1 | 24,3 | 23,3                                    | 23,9 | 23,4 | 24,1 | 24,3 |
|                                                                 | 3H  | 23,2                                           | 24,0 | 23,6 | 24,2 | 24,4 | 23,2                                    | 24,0 | 23,6 | 24,2 | 24,4 |
|                                                                 | 4H  | 23,3                                           | 24,0 | 23,7 | 24,2 | 24,5 | 23,3                                    | 24,0 | 23,7 | 24,2 | 24,5 |
|                                                                 | 6H  | 23,4                                           | 24,0 | 23,7 | 24,3 | 24,6 | 23,4                                    | 24,0 | 23,7 | 24,3 | 24,6 |
|                                                                 | 8H  | 23,4                                           | 23,9 | 23,7 | 24,3 | 24,6 | 23,4                                    | 23,9 | 23,7 | 24,3 | 24,6 |
|                                                                 | 12H | 23,3                                           | 23,9 | 23,7 | 24,2 | 24,7 | 23,3                                    | 23,9 | 23,7 | 24,2 | 24,7 |
| 4H                                                              | 2H  | 23,0                                           | 23,8 | 23,4 | 24,0 | 24,2 | 23,0                                    | 23,8 | 23,4 | 24,0 | 24,2 |
|                                                                 | 3H  | 23,3                                           | 23,8 | 23,6 | 24,2 | 24,6 | 23,3                                    | 23,8 | 23,6 | 24,2 | 24,6 |
|                                                                 | 4H  | 23,3                                           | 23,8 | 23,7 | 24,3 | 24,8 | 23,3                                    | 23,8 | 23,7 | 24,3 | 24,8 |
|                                                                 | 6H  | 23,4                                           | 24,0 | 23,9 | 24,3 | 24,6 | 23,4                                    | 24,0 | 23,9 | 24,3 | 24,6 |
|                                                                 | 8H  | 23,4                                           | 23,9 | 23,9 | 24,2 | 24,6 | 23,4                                    | 23,9 | 23,9 | 24,2 | 24,6 |
|                                                                 | 12H | 23,3                                           | 23,7 | 23,8 | 24,2 | 24,6 | 23,3                                    | 23,7 | 23,8 | 24,2 | 24,6 |
| 8H                                                              | 4H  | 23,3                                           | 23,8 | 23,8 | 24,1 | 24,5 | 23,3                                    | 23,8 | 23,8 | 24,1 | 24,5 |
|                                                                 | 6H  | 23,4                                           | 23,8 | 23,9 | 24,2 | 24,8 | 23,4                                    | 23,8 | 23,9 | 24,2 | 24,8 |
|                                                                 | 8H  | 23,5                                           | 23,8 | 24,0 | 24,3 | 24,9 | 23,5                                    | 23,8 | 24,0 | 24,3 | 24,9 |
|                                                                 | 12H | 23,5                                           | 23,7 | 24,1 | 24,2 | 24,8 | 23,5                                    | 23,7 | 24,1 | 24,2 | 24,8 |
| 12H                                                             | 4H  | 23,2                                           | 23,6 | 23,7 | 24,0 | 24,5 | 23,2                                    | 23,6 | 23,7 | 24,0 | 24,5 |
|                                                                 | 6H  | 23,5                                           | 23,7 | 24,0 | 24,2 | 24,9 | 23,5                                    | 23,7 | 24,0 | 24,2 | 24,9 |
|                                                                 | 8H  | 23,5                                           | 23,7 | 24,0 | 24,2 | 24,8 | 23,5                                    | 23,7 | 24,0 | 24,2 | 24,8 |
| Variation of the observer position for the luminaire distance S |     |                                                |      |      |      |      |                                         |      |      |      |      |
| S = 1.0H                                                        |     | 3,9 / -3,6                                     |      |      |      |      | 3,9 / -3,6                              |      |      |      |      |
| S = 1.5H                                                        |     | 6,4 / -4,0                                     |      |      |      |      | 6,4 / -4,0                              |      |      |      |      |
| S = 2.0H                                                        |     | 8,3 / -4,3                                     |      |      |      |      | 8,3 / -4,3                              |      |      |      |      |
| Standard table                                                  |     | n/a                                            |      |      |      |      | n/a                                     |      |      |      |      |
| Correction summand                                              |     | n/a                                            |      |      |      |      | n/a                                     |      |      |      |      |
| Corrected glare indices referring to 3141lm total luminous flux |     |                                                |      |      |      |      |                                         |      |      |      |      |



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