

# LM-79

## Test Report

### LM79-REVO-COMPACT-TRACK-5000K-CRI80- DEG12x46

#### General Discription

|                   |                   |
|-------------------|-------------------|
| Item number       | RC-X-X-06-2       |
| Date and time     | 5-8-2016 13:28:34 |
| CCT (Kelvin)      | 4833 K            |
| Beam angle        | 30,5°             |
| Luminous flux     | 742 lm            |
| Efficiency        | 73 lm/watt        |
| Weighted energy   | 10,1 kWh/1000h    |
| Power factor      | 0,95              |
| CRI (RA)          | 86,3              |
| Fidelity index Rf | Rf 85,6           |
| Gammut index Rg   | Rg 97,4           |



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| Beam details | 1m      | 2m     | 3m     | 4m     | 5m    |
|--------------|---------|--------|--------|--------|-------|
| <b>Lux*</b>  | 2038 lx | 509 lx | 226 lx | 127 lx | 82 lx |

30,5°

\*measured at center of beam

|                           |           |          |          |          |         |
|---------------------------|-----------|----------|----------|----------|---------|
| <b>Footcandles*</b>       | 189,3 fcd | 47,3 fcd | 21,0 fcd | 11,8 fcd | 7,6 fcd |
| <b>Beam width (meter)</b> | 0,5 m     | 1,1 m    | 1,6 m    | 2,2 m    | 2,7 m   |
| <b>Beam width (Feet)</b>  | 1,8 ft    | 3,6 ft   | 5,4 ft   | 7,2 ft   | 8,9 ft  |

| Beam intensities |         |       |         |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |
|------------------|---------|-------|---------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 1m               | 2m      | 3m    | 4m      | 5m     | 6m     | 7m     | 8m     | 9m     | 10m    | 11m    | 12m    | 13m    | 14m    | 15m    | 16m    | 17m    | 18m    | 19m    | 20m    |
| 2038lx           | 509lx   | 226lx | 127lx   | 82lx   | 57lx   | 42lx   | 32lx   | 25lx   | 20lx   | 17lx   | 14lx   | 12lx   | 10lx   | 9lx    | 8lx    | 7lx    | 6lx    | 6lx    | 5lx    |
| 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 |
| 189,3fcd         | 47,3fcd | 21fcd | 11,8fcd | 7,6fcd | 5,3fcd | 3,9fcd | 3fcd   | 2,3fcd | 1,9fcd | 1,6fcd | 1,3fcd | 1,1fcd | 1fcd   | 0,8fcd | 0,7fcd | 0,7fcd | 0,6fcd | 0,5fcd | 0,5fcd |

| 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° |
| 2038                      | 1935 | 1657 | 1278 | 926 | 639 | 424 | 270 | 169 | 111 | 73  | 50  | 36  | 29  | 24  | 20  | 17  | 15  | 13  | 12  |
| 100%                      | 95%  | 81%  | 63%  | 45% | 31% | 21% | 13% | 8%  | 5%  | 4%  | 2%  | 2%  | 1%  | 1%  | 1%  | 1%  | 1%  | 1%  | 1%  |

| 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° |
| 2038                       | 2029 | 2012 | 2001 | 1941 | 1875 | 1787 | 1685 | 1559 | 1413 | 1258 | 1099 | 942 | 784 | 640 | 511 | 403 | 307 | 235 | 178 |
| 100%                       | 100% | 99%  | 98%  | 95%  | 92%  | 88%  | 83%  | 76%  | 69%  | 62%  | 54%  | 46% | 38% | 31% | 25% | 20% | 15% | 12% | 9%  |

| 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° |
| 2038                        | 1935 | 1657 | 1278 | 926 | 639 | 424 | 270 | 169 | 111 | 73  | 50  | 36  | 29  | 24  | 20  | 17  | 15  | 13  | 12  |
| 100%                        | 95%  | 81%  | 63%  | 45% | 31% | 21% | 13% | 8%  | 5%  | 4%  | 2%  | 2%  | 1%  | 1%  | 1%  | 1%  | 1%  | 1%  | 1%  |

| 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° |
| 2038                        | 2029 | 2012 | 2001 | 1941 | 1875 | 1787 | 1685 | 1559 | 1413 | 1258 | 1099 | 942 | 784 | 640 | 511 | 403 | 307 | 235 | 178 |
| 100%                        | 100% | 99%  | 98%  | 95%  | 92%  | 88%  | 83%  | 76%  | 69%  | 62%  | 54%  | 46% | 38% | 31% | 25% | 20% | 15% | 12% | 9%  |

|                       |                        |                          |                                     |                                    |
|-----------------------|------------------------|--------------------------|-------------------------------------|------------------------------------|
| <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> |
| 30,5°                 | 52,4°                  | {C_ANG}°                 | 98,5%                               | 96,0%                              |



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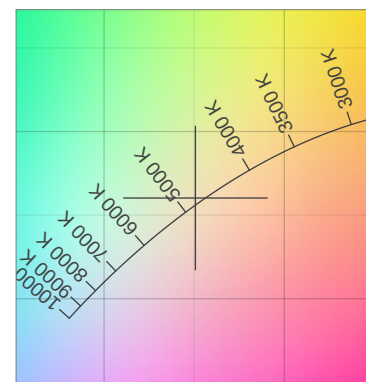
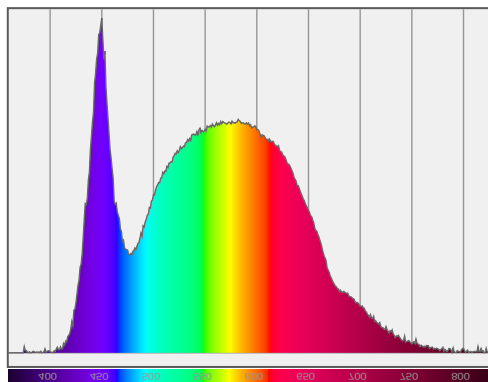
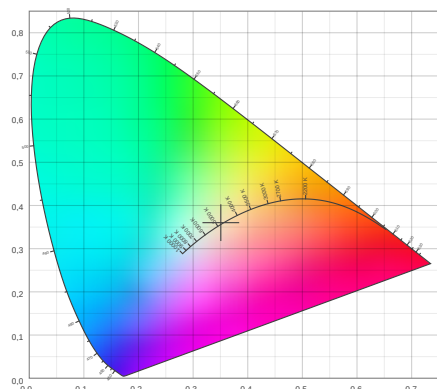
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#### Color details



CIE 1931

x: 0,351

4833 K

y: 0,360

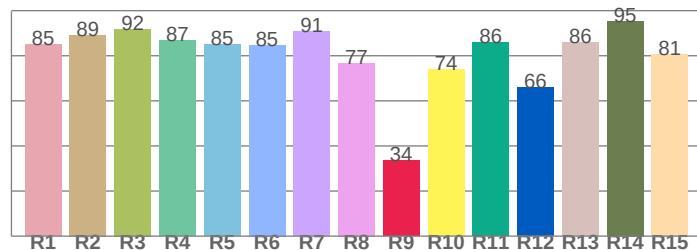
Spectra

CIE 1931 ZOOM

$\Delta uv$ : 0,0021

CRI: 86,3 (R1-R8)

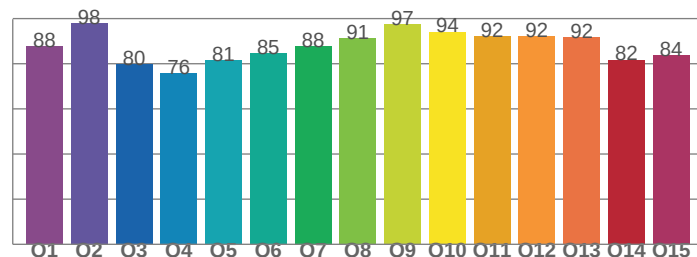
CRI values, R1-R8 are used to calculate final CRI value



| R1   | R2   | R3   | R4   | R5   | R6   | R7   | R8   |
|------|------|------|------|------|------|------|------|
| 85,1 | 89,2 | 91,9 | 86,9 | 85,0 | 84,7 | 90,9 | 76,8 |
| R9   | R10  | R11  | R12  | R13  | R14  | R15  |      |
| 33,6 | 74,0 | 86,0 | 66,0 | 85,9 | 95,5 | 80,8 |      |

CQS: 86,4

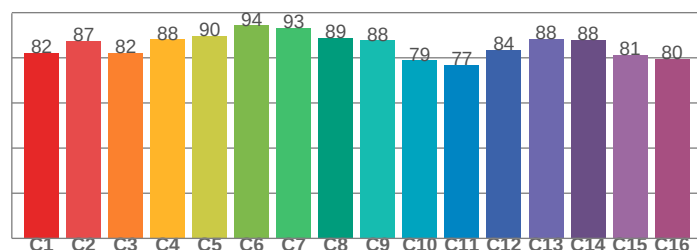
CQS values



| Q1   | Q2   | Q3   | Q4   | Q5   | Q6   | Q7   | Q8   |
|------|------|------|------|------|------|------|------|
| 87,7 | 98,1 | 79,6 | 75,8 | 81,5 | 84,6 | 87,7 | 91,2 |
| Q9   | Q10  | Q11  | Q12  | Q13  | Q14  | Q15  |      |
| 97,3 | 94,2 | 92,2 | 92,3 | 91,8 | 81,7 | 83,9 |      |

TM30: 85,6

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



| C1   | C2   | C3   | C4   | C5   | C6   | C7   | C8   |
|------|------|------|------|------|------|------|------|
| 82,2 | 87,5 | 82,3 | 88,1 | 89,8 | 94,3 | 93,2 | 88,8 |
| C9   | C10  | C11  | C12  | C13  | C14  | C15  |      |
| 87,7 | 78,8 | 76,9 | 83,6 | 88,4 | 88,0 | 81,3 |      |

#### 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                | $\Delta uv$                     |
| 4833 K            | 86,3                  | 33,6          | 85,6           | 97,4        | 86,4                | 0,351                     | 0,360                     | 0,212            | 0,326            | 0,0021                          |



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#### TM30 details

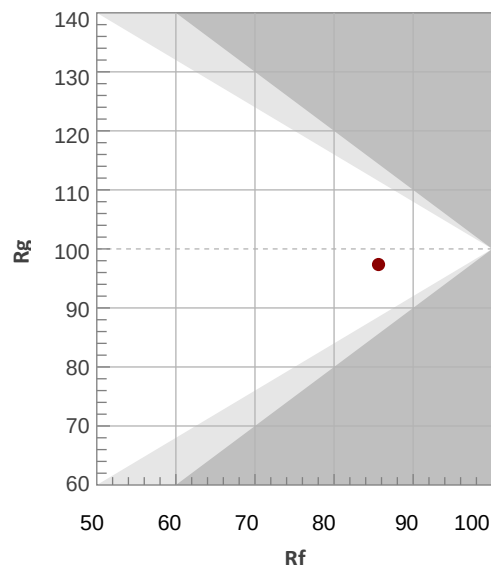
Rf 85,6

Fidelity index Rf

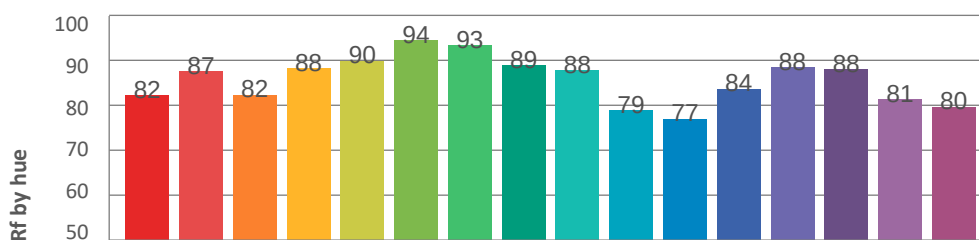
Rg 97,4

Gamut index Rg

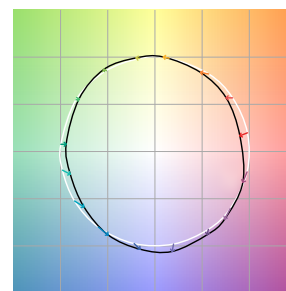
| Hue Bin | R <sub>f</sub> | Graphic shifts (%) |      |
|---------|----------------|--------------------|------|
|         |                | Chroma             | Hue  |
| 1       | 82             | -9%                | -2%  |
| 2       | 87             | -6%                | 4%   |
| 3       | 82             | -3%                | 8%   |
| 4       | 88             | 0%                 | 6%   |
| 5       | 90             | 1%                 | 4%   |
| 6       | 94             | 2%                 | -1%  |
| 7       | 93             | -2%                | -3%  |
| 8       | 89             | -6%                | -1%  |
| 9       | 88             | -7%                | 6%   |
| 10      | 79             | -5%                | 11%  |
| 11      | 77             | 1%                 | 13%  |
| 12      | 84             | 5%                 | 7%   |
| 13      | 88             | 7%                 | -3%  |
| 14      | 88             | 4%                 | -4%  |
| 15      | 81             | 1%                 | -13% |
| 16      | 80             | -2%                | -12% |



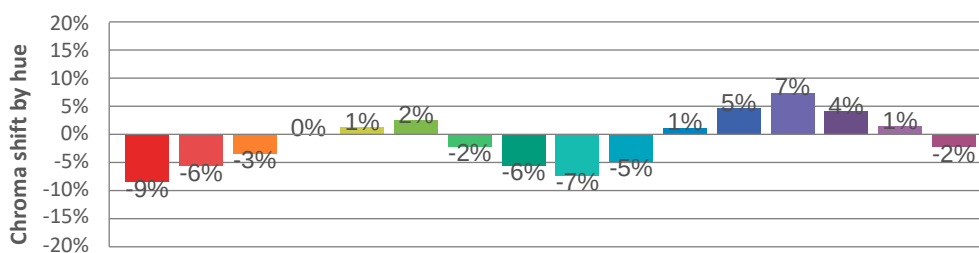
#### Hue binH



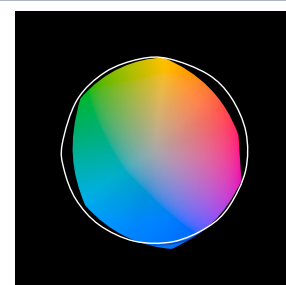
#### Color vector graphics



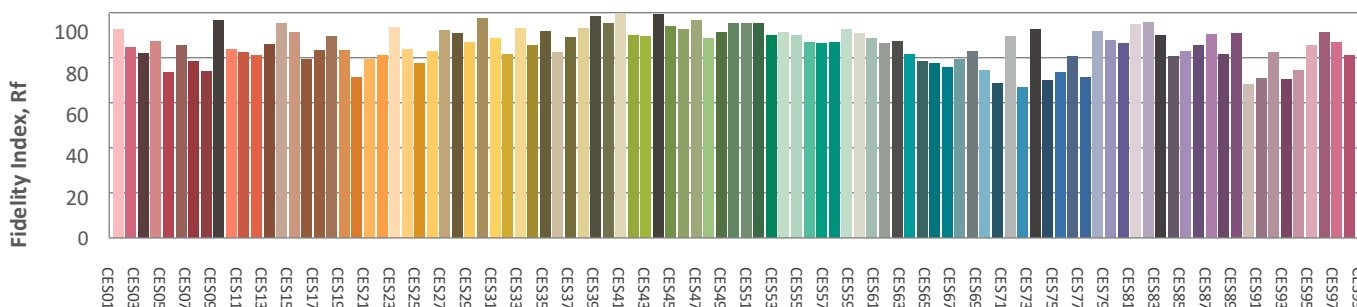
#### Hue bin



#### Color distortion graphics



#### Color Evaluation Sample



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### LM79-REVO-COMPACT-TRACK-5000K-CRI80- DEG12x46

#### 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  | 12,8                                           | 13,5 | 13,1 | 13,7 | 13,9 | 19,8                                    | 20,5 | 20,1 | 20,7 | 20,9 |
|                                                                 | 3H  | 12,9                                           | 13,5 | 13,2 | 13,8 | 14,0 | 19,8                                    | 20,4 | 20,1 | 20,6 | 20,9 |
|                                                                 | 4H  | 12,9                                           | 13,5 | 13,3 | 13,8 | 14,1 | 19,7                                    | 20,3 | 20,0 | 20,6 | 20,8 |
|                                                                 | 6H  | 13,0                                           | 13,5 | 13,3 | 13,8 | 14,1 | 19,7                                    | 20,2 | 20,0 | 20,5 | 20,8 |
|                                                                 | 8H  | 13,0                                           | 13,5 | 13,3 | 13,8 | 14,1 | 19,6                                    | 20,2 | 20,0 | 20,5 | 20,8 |
|                                                                 | 12H | 13,0                                           | 13,5 | 13,3 | 13,8 | 14,1 | 19,6                                    | 20,1 | 20,0 | 20,4 | 20,7 |
| 4H                                                              | 2H  | 12,8                                           | 13,4 | 13,2 | 13,7 | 14,0 | 19,7                                    | 20,3 | 20,0 | 20,5 | 20,8 |
|                                                                 | 3H  | 13,0                                           | 13,5 | 13,4 | 13,8 | 14,2 | 19,6                                    | 20,1 | 20,0 | 20,4 | 20,7 |
|                                                                 | 4H  | 13,1                                           | 13,6 | 13,5 | 13,9 | 14,3 | 19,6                                    | 20,0 | 20,0 | 20,3 | 20,7 |
|                                                                 | 6H  | 13,2                                           | 13,6 | 13,6 | 13,9 | 14,3 | 19,5                                    | 19,9 | 19,9 | 20,3 | 20,6 |
|                                                                 | 8H  | 13,2                                           | 13,6 | 13,7 | 14,0 | 14,4 | 19,5                                    | 19,8 | 19,9 | 20,2 | 20,6 |
|                                                                 | 12H | 13,3                                           | 13,5 | 13,7 | 14,0 | 14,4 | 19,5                                    | 19,8 | 19,9 | 20,2 | 20,6 |
| 8H                                                              | 4H  | 13,1                                           | 13,5 | 13,6 | 13,9 | 14,3 | 19,5                                    | 19,8 | 19,9 | 20,2 | 20,6 |
|                                                                 | 6H  | 13,3                                           | 13,5 | 13,7 | 13,9 | 14,4 | 19,4                                    | 19,7 | 19,9 | 20,1 | 20,6 |
|                                                                 | 8H  | 13,3                                           | 13,5 | 13,8 | 14,0 | 14,5 | 19,4                                    | 19,6 | 19,9 | 20,1 | 20,5 |
|                                                                 | 12H | 13,4                                           | 13,6 | 13,9 | 14,0 | 14,5 | 19,4                                    | 19,5 | 19,9 | 20,0 | 20,5 |
| 12H                                                             | 4H  | 13,1                                           | 13,4 | 13,6 | 13,8 | 14,2 | 19,4                                    | 19,7 | 19,9 | 20,1 | 20,5 |
|                                                                 | 6H  | 13,3                                           | 13,5 | 13,7 | 13,9 | 14,4 | 19,4                                    | 19,6 | 19,9 | 20,0 | 20,5 |
|                                                                 | 8H  | 13,3                                           | 13,5 | 13,8 | 14,0 | 14,5 | 19,4                                    | 19,5 | 19,9 | 20,0 | 20,5 |
| Variation of the observer position for the luminaire distance S |     |                                                |      |      |      |      |                                         |      |      |      |      |
| S = 1,0H                                                        |     | +3,8 / -3,0                                    |      |      |      |      | +5,1 / -6,6                             |      |      |      |      |
| S = 1,5H                                                        |     | +5,3 / -3,4                                    |      |      |      |      | +7,8 / -7,8                             |      |      |      |      |
| S = 2,0H                                                        |     | +7,1 / -4,2                                    |      |      |      |      | +9,8 / -8,7                             |      |      |      |      |
| Standard table                                                  |     | BK01                                           |      |      |      |      | BK00                                    |      |      |      |      |
| Correction summand                                              |     | -4,8                                           |      |      |      |      | 1,4                                     |      |      |      |      |
| Corrected glare indices referring to 742lm total luminous flux  |     |                                                |      |      |      |      |                                         |      |      |      |      |



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