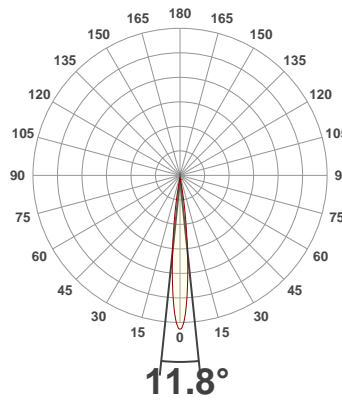
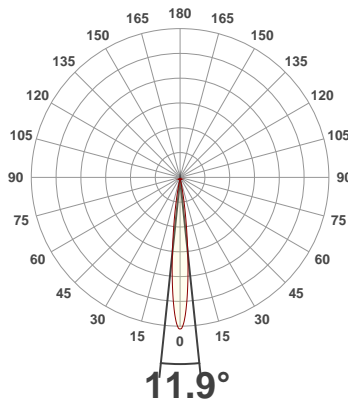




PRODUCT INFORMATION

| | |
|----------------------|----------------|
| SERIAL NUMBER: | LL-200325-0497 |
| DATE OF MEASUREMENT: | 25/03/2020 |
| SIZE (dia. x h): | 73 mm x 47 mm |

ANGULAR DISTRIBUTION AT C0/180 | ANGULAR DISTRIBUTION AT C90/270 | LIGHT OUTPUT DATA

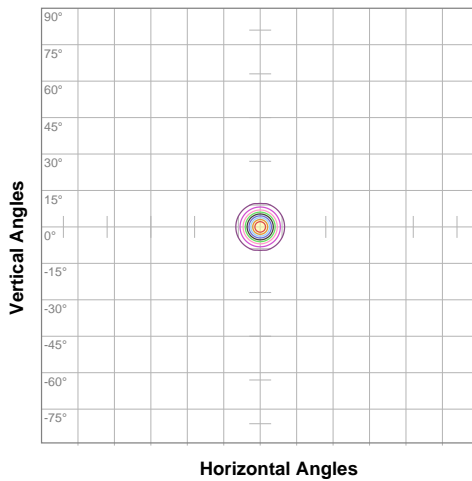


| | |
|------------------------------|---------|
| TOTAL LUMEN OUTPUT: | 264 lm |
| EFFICACY: | 33 lm/W |
| PEAK INTENSITY: | 5009 cd |
| COLOR RENDERING INDEX (CRI): | 77.4 |
| COLOR TEMPERATURE (CCT): | 6878K |
| FIDELITY INDEX (TM30Rf): | 74.1 |
| GAMUT INDEX (TM30Rg): | 100.7 |

BEAM OUTPUT DATA

| | |
|------------------------------|-------|
| BEAM ANGLE (FWHM) C0/180: | 11.9° |
| BEAM ANGLE (FWHM) C90/270: | 11.8° |
| FIELD ANGLE (10%) C0/180: | 22.4° |
| FIELD ANGLE (10%) C90/270: | 22° |
| NUMBER OF PLANES MEASURED: | 12 |

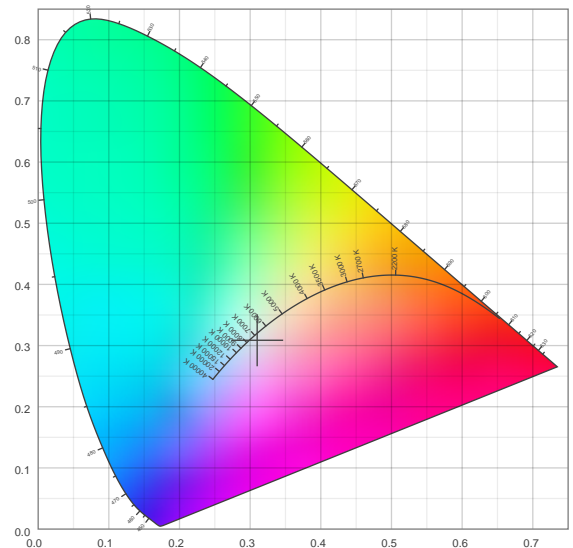
ISOCANDELA DIAGRAM



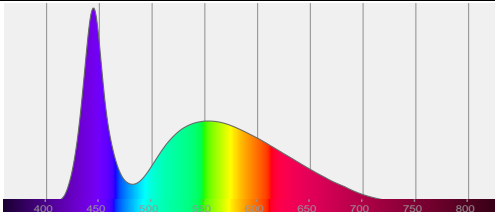
| | |
|-----|---------|
| 10% | 501 cd |
| 20% | 1001 cd |
| 30% | 1502 cd |
| 40% | 2002 cd |
| 50% | 2503 cd |
| 60% | 3004 cd |
| 70% | 3504 cd |
| 80% | 4005 cd |
| 90% | 4505 cd |

| | |
|----------------------|----------|
| INPUT POWER: | 8.1 W |
| POWER FACTOR: | 1.0 |
| OPTICAL POWER: | 0.903 mW |
| PEAK WAVELENGTH: | 445 nm |
| DOMINANT WAVELENGTH: | 360 nm |

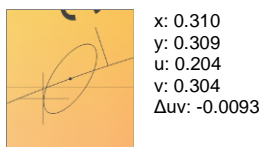
CIE 1931



SPECTRAL DISTRIBUTION



CIE 1931 ZOOM



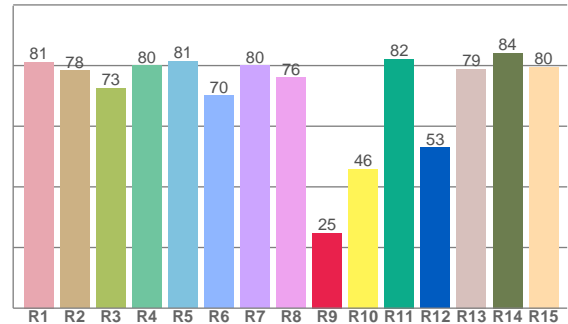
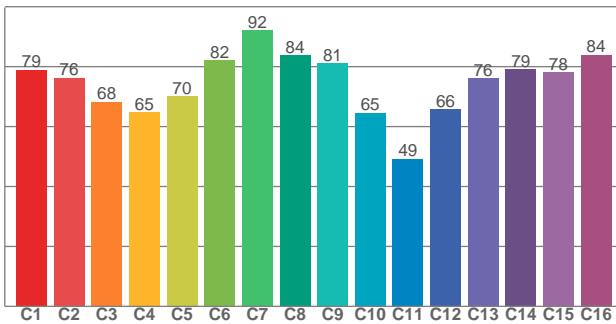
ZONAL LUMEN SUMMARY

| | | | | | | | | |
|----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| 0°-10° 211 lm | 10°-20° 46.4 lm | 20°-30° 5.82 lm | 30°-40° 1.07 lm | 40°-50° 0.253 lm | 50°-60° 0.099 lm | 60°-70° 0.057 lm | 70°-80° 0.041 lm | 80°-90° 0.030 lm |
| 90°-100° 0.012 lm | 100°-110° 0.004 lm | 110°-120° 0.003 lm | 120°-130° 0.003 lm | 130°-140° 0.003 lm | 140°-150° 0.002 lm | 150°-160° 0.002 lm | 160°-170° 0.001 lm | 170°-180° 0.000 lm |

COLOR DETAILS

TM30: 74.1

CRI: 77.4 (R1-R8)



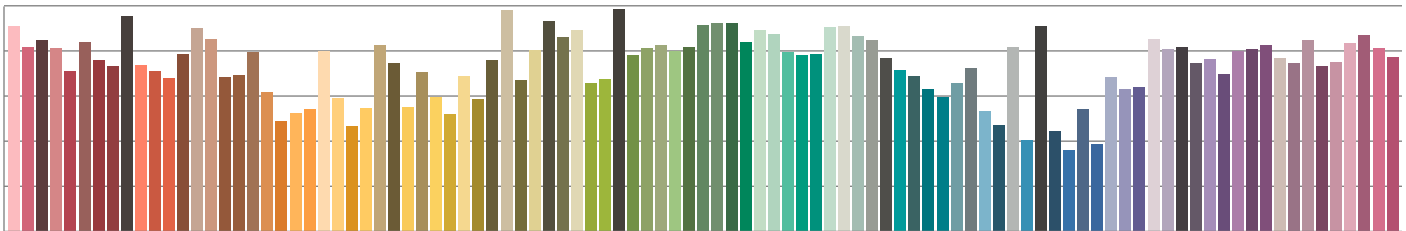
TM30 C values, 16 binned values out of total of 99 C values

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

| C1 | C2 | C3 | C4 | C5 | C6 | C7 | C8 | C9 | C10 | C11 | C12 | C13 | C14 | C15 | C16 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 78.9 | 76.3 | 68.3 | 64.7 | 70.1 | 82.2 | 92.1 | 83.7 | 81.1 | 64.6 | 49.3 | 65.8 | 76.2 | 79.1 | 78.2 | 84.0 |

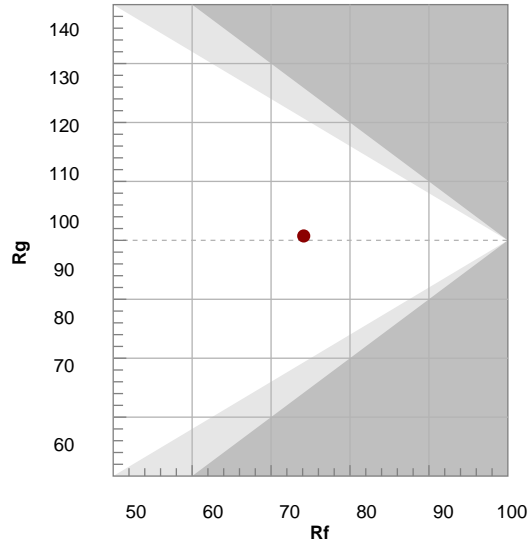
| R1 | R2 | R3 | R4 | R5 | R6 | R7 | R8 | R9 | R10 | R11 | R12 | R13 | R14 | R15 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 81.2 | 78.4 | 72.5 | 80.0 | 81.4 | 70.0 | 80.0 | 76.0 | 24.8 | 45.8 | 82.2 | 52.9 | 78.9 | 84.2 | 79.6 |

TM30 COLOR EVALUATION SAMPLE



TM30 DETAILS

| Hue Bin | R _f | Graphic shifts (%) | |
|---------|----------------|--------------------|------|
| | | Chroma | Hue |
| 1 | 79 | -11% | -3% |
| 2 | 76 | -10% | 9% |
| 3 | 68 | -4% | 20% |
| 4 | 65 | 4% | 22% |
| 5 | 70 | 14% | 14% |
| 6 | 82 | 12% | 0% |
| 7 | 92 | 2% | -5% |
| 8 | 84 | -6% | -8% |
| 9 | 81 | -16% | 3% |
| 10 | 65 | -12% | 20% |
| 11 | 49 | -4% | 28% |
| 12 | 66 | 4% | 23% |
| 13 | 76 | 14% | 14% |
| 14 | 79 | 19% | 0% |
| 15 | 78 | 11% | -13% |
| 16 | 84 | 0% | -10% |

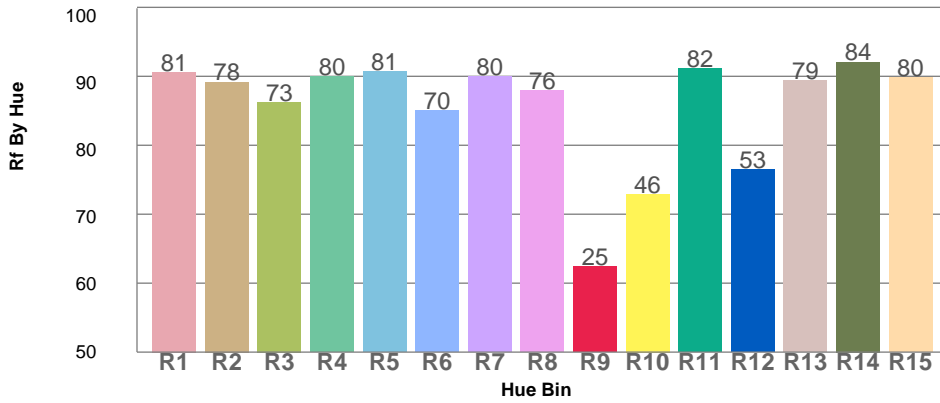


FIDELITY INDEX
R_f 74.1

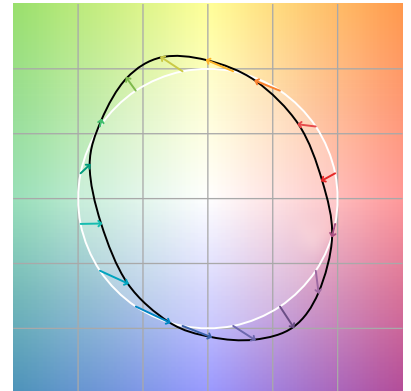
GAMUT INDEX
R_g 100.7

Approx. limits for sources on the Planckian locus.
Approx. limits for practical light sources.

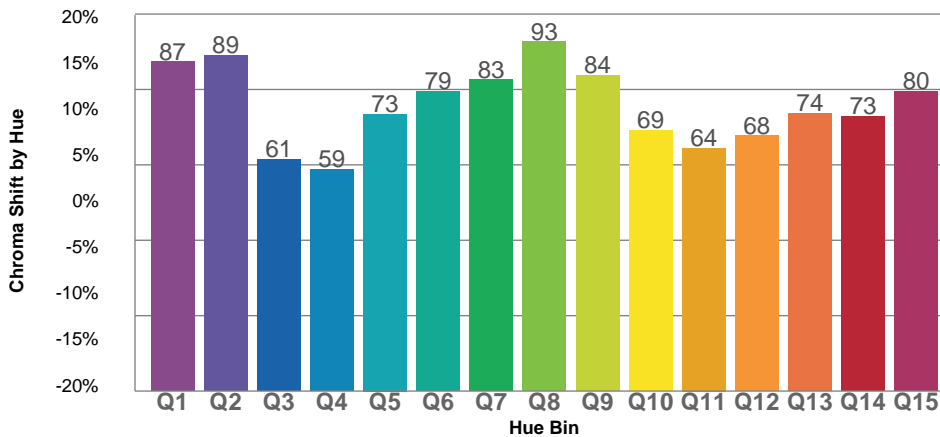
TM30 OVER 50



COLOR VECTOR GRAPHICS



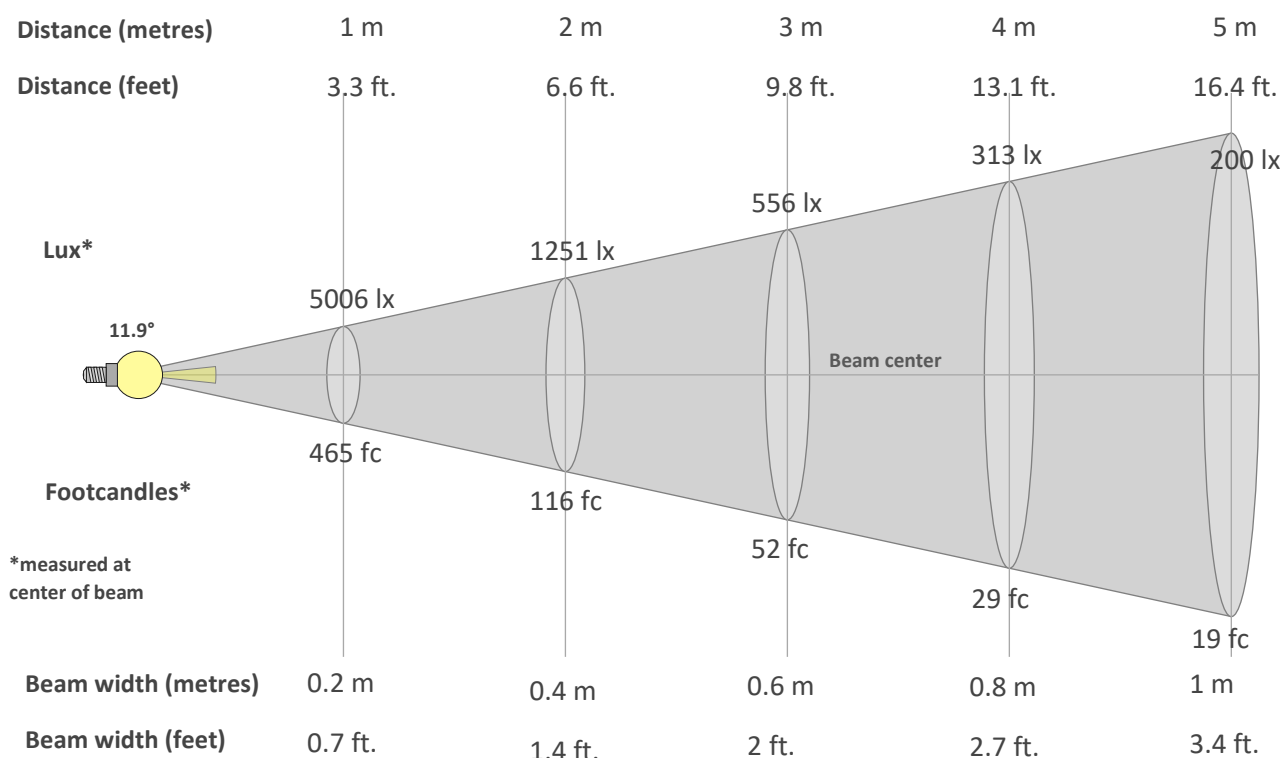
TM30 CHROMA SHIFT



COLOR DISTORTION GRAPHICS



BEAM DETAILS



Beam intensity from 1-20m

| 1m | 2m | 3m | 4m | 5m | 6m | 7m | 8m | 9m | 10m | 11m | 12m | 13m | 14m | 15m | 16m | 17m | 18m | 19m | 20m |
|---------|---------|--------|--------|--------|--------|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 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 |
| 5006lx | 1251lx | 556lx | 313lx | 200lx | 139lx | 102lx | 78lx | 62lx | 50lx | 41lx | 35lx | 30lx | 26lx | 22lx | 20lx | 17lx | 15lx | 14lx | 13lx |
| 465.1fc | 116.3fc | 51.7fc | 29.1fc | 18.6fc | 12.9fc | 9.5fc | 7.3fc | 5.7fc | 4.7fc | 3.8fc | 3.2fc | 2.8fc | 2.4fc | 2.1fc | 1.8fc | 1.6fc | 1.4fc | 1.3fc | 1.2fc |

Intensity in 0° c-plane

| 0° | 1° | 2° | 3° | 4° | 5° | 6° | 7° | 8° | 9° | 10° | 11° | 12° | 13° | 14° | 15° | 16° | 17° | 18° | 19° |
|------|------|------|------|------|------|------|------|------|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 5006 | 4909 | 4624 | 4183 | 3650 | 3071 | 2483 | 1942 | 1474 | 1085 | 770 | 534 | 367 | 250 | 170 | 119 | 86 | 64 | 50 | 39 |
| 100% | 98% | 92% | 84% | 73% | 61% | 50% | 39% | 29% | 22% | 15% | 11% | 7% | 5% | 3% | 2% | 2% | 1% | 1% | 1% |

Intensity in 90° c-plane

| 0° | 1° | 2° | 3° | 4° | 5° | 6° | 7° | 8° | 9° | 10° | 11° | 12° | 13° | 14° | 15° | 16° | 17° | 18° | 19° |
|------|------|------|------|------|------|------|------|------|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 5006 | 4909 | 4625 | 4177 | 3627 | 3035 | 2444 | 1898 | 1425 | 1035 | 726 | 498 | 334 | 223 | 149 | 104 | 75 | 57 | 45 | 36 |
| 100% | 98% | 92% | 83% | 72% | 61% | 49% | 38% | 28% | 21% | 15% | 10% | 7% | 4% | 3% | 2% | 1% | 1% | 1% | 1% |

Intensity in 180° c-plane

| 0° | 1° | 2° | 3° | 4° | 5° | 6° | 7° | 8° | 9° | 10° | 11° | 12° | 13° | 14° | 15° | 16° | 17° | 18° | 19° |
|------|------|------|------|------|------|------|------|------|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 5006 | 4909 | 4624 | 4183 | 3650 | 3071 | 2483 | 1942 | 1474 | 1085 | 770 | 534 | 367 | 250 | 170 | 119 | 86 | 64 | 50 | 39 |
| 100% | 98% | 92% | 84% | 73% | 61% | 50% | 39% | 29% | 22% | 15% | 11% | 7% | 5% | 3% | 2% | 2% | 1% | 1% | 1% |

Intensity in 270° c-plane

| 0° | 1° | 2° | 3° | 4° | 5° | 6° | 7° | 8° | 9° | 10° | 11° | 12° | 13° | 14° | 15° | 16° | 17° | 18° | 19° |
|------|------|------|------|------|------|------|------|------|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 5006 | 4909 | 4625 | 4177 | 3627 | 3035 | 2444 | 1898 | 1425 | 1035 | 726 | 498 | 334 | 223 | 149 | 104 | 75 | 57 | 45 | 36 |
| 100% | 98% | 92% | 83% | 72% | 61% | 49% | 38% | 28% | 21% | 15% | 10% | 7% | 4% | 3% | 2% | 1% | 1% | 1% | 1% |