
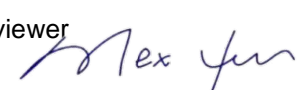


|   |  |  |  |  |   |
|---|--|--|--|--|---|
| <b>Prüfbericht</b><br><i>Test report</i>  |  |  | <b>Auftragsnr. / order no.:</b> 244268555<br><b>Berichtsnr. / report no.:</b> 60397046 001 |  |   |
| <b>Auftraggeber</b><br><i>client:</i>   |  |  | <b>Auftragsdatum /</b><br><i>date of order:</i> 23.09.2020                                 |  |   |
| <b>NISKO GROUP LTD.</b><br>41 HAMAAYAN<br>MODI'IN, Israel.  |  |  | <b>AG-Referenz-Nr. /</b><br><i>client reference no.:</i> -                                 |  |   |
| <b>Inhalt des Auftrags</b><br><i>content of order:</i>  |  |  | Electrical and Photometric Measurement to LM-79-08   |  |   |
| <b>Prüfgrundlagen</b><br><i>test specifications:</i>  |  |  | IES LM-79-08   |  |   |
| <b>Prüfgegenstand</b> <i>test item:</i>   |  |  | LED Street Light   |  |   |
| <b>EAN-Nr. / no.:</b> N/A   |  |  |  |  |   |
| <b>Bezeichnung</b><br><i>identification:</i>  |  | EL-SL18MA-80W CLASS I<br>T3VS 4000K  |  |  |   |
| <b>Eingang Prüfgegenstand</b><br><i>receipt of test item:</i>   |  | 23.09.2020   |  |  |   |
| <b>Prüfgegenstands-Nr.</b><br><i>test item no.:</i>   |  | A002073542-008   |  |  |   |
| <b>Prüfzeitraum und -ort</b><br><i>period of test and location:</i>   |  | 23.09.2020-28.08.2020,<br>Shanghai Xingshang<br>Photoelectric<br>technology Co., Ltd |  |  |   |
| <b>Prüflaboratorium</b><br><i>testing laboratory:</i>   |  | TÜV Rheinland (Shanghai)<br>Co., Ltd.  |  |  |   |
| <b>Prüfergebnis</b><br><i>test result *):</i>   |  | N/A  |  |  |   |
| <b>Sonstiges / other aspects:</b> Tests at client's request and there is only test data available in this report and no further ratings for test result. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the U.S. Government..   |  |  |  |  |   |
| <b>geprüft / tested by:</b>   |  |  | <b>kontrolliert / reviewed by:</b>   |  |   |
| 06.11.2020 Fernando Dai /PE   |  |  | 06.11.2020 Alex Yan /Reviewer  |  |   |
|    |  |  |       |  |   |
| <b>Datum</b><br><i>Date</i>   | <b>Name/Stellung</b><br><i>Name/Position</i> | <b>Unterschrift</b><br><i>Signature</i>  | <b>Datum</b><br><i>Date</i>  | <b>Name/Stellung</b><br><i>Name/Position</i> | <b>Unterschrift</b><br><i>Signature</i> |
| <p><b>Dieser Prüfbericht bezieht sich nur auf das o.g. Prüfmuster und darf ohne Genehmigung der Prüfstelle nicht auszugsweise vervielfältigt werden. Dieser Bericht berechtigt nicht zur Verwendung eines Prüfzeichens.</b> Dieser Prüfbericht wird neben der Dokumentation der Einzelergebnisse durch eine Bewertung des Produktes ergänzt. Diese Bewertung stützt sich nicht in jedem Fall auf ein durchgängiges Punkte- oder Bewertungssystem, wohl aber auf die Erfahrung der Experten des TÜV Rheinland. Die Bewertung ist keine rechtsverbindliche Interpretation der Mängelfreiheit eines Produktes.</p> <p><b>This test report relates to the a. m. test sample. Without permission of the testing laboratory this report is not permitted to be duplicated in extracts.</b> This test report does not entitle to carry any safety or other mark on this product. Besides single test results this test report contains an assessment of the product. This assessment is not always based on a continuous rating system, but on experience of the experts of TÜV Rheinland Group. This assessment is not a legally binding interpretation of the flawlessness of the product.</p> |  |  |  |  |   |

**General Remarks:**

Factory: NINGBO SKYZON ENERGY CO., LTD  
Address: No.19, Ke San Road, Ninghai 315600, Ningbo China

**Product Information**

| Model name                             | Sample number  | Rated voltage, frequency (V, Hz) | Nominal CCT (K) | Rated Wattage (W) | Type of LED Chip   |
|--|----------------|----------------------------------|-----------------|-------------------|--|
| EL-SL18MA-80W<br>CLASS I T3VS<br>4000K | A002073542-008 | 200-240Vac,<br>50/60Hz           | 4000K           | 80W               | LUMILEDS<br>LUXEON 5050-<br>L15040705006000<br>00<br>18S2P |

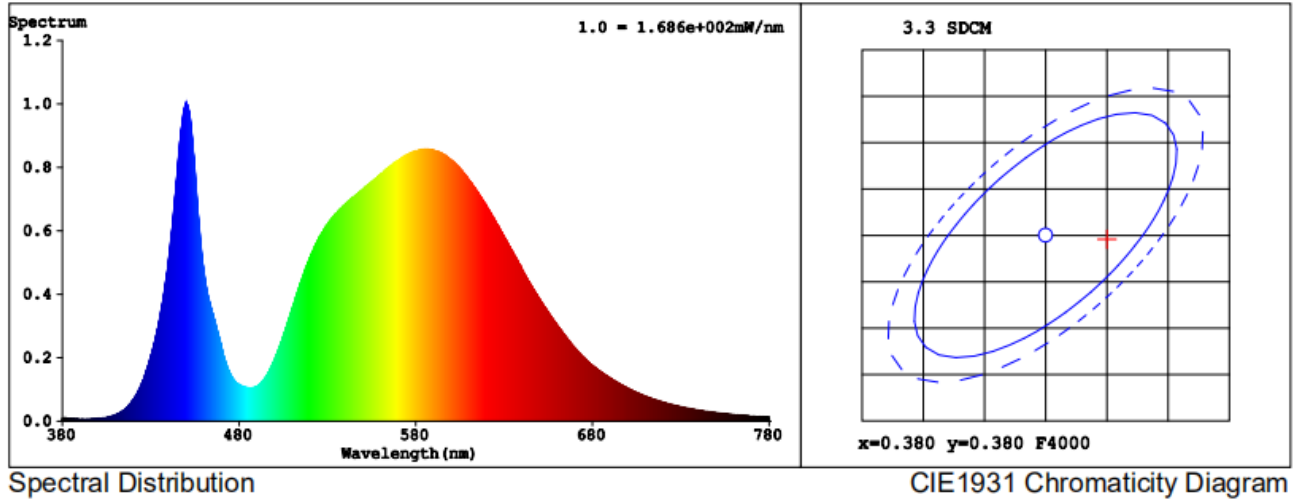
| <b>Test conditions:</b>   |   |
|---|---|
| <b>Number of hours operated prior to measurement</b>                                | <b><u>0</u> hours</b>   |
| <b>Total operating time of the product for measurements including stabilization</b> | <b><u>2</u> hours and <u>30</u> minutes</b>   |
| <b>Ambient</b>  | <b>25 °C</b>  |
| <b>Orientation</b>  | <b>As normal use</b>  |
| <b>Stabilization time</b>   | <b><u>90</u> minutes</b>  |
| <b>Test method</b>  | <b>Type C Gonio-photometer with moving mirror was used for photometric measurement (C- <math>\gamma</math> system)</b>  |
| <b>Designation and type of reference standard lamp</b>                              | <b>For standard luminous flux lamp</b><br><b>Current: 1.389A</b><br><b>Reference luminous flux: 4310 lm</b><br><b>Lamp type: Filament lamp</b><br><b>Intensity distribution type: Omni-directional</b>                      |
|   | <b>For standard luminous intensity lamp:</b><br><b>Current: 9.6217A</b><br><b>Reference luminous intensity: 571.9 cd</b><br><b>Lamp type: Tungsten halogen lamp</b><br><b>Intensity distribution type: Omni-directional</b> |
| <b>Correction factor applied</b>  | <b>N/A</b>  |
| <b>Photometric distance</b>   | <b>3.0m for photometric measurement</b>   |
|   | <b>8.98m for luminous intensity measurement</b>   |

| <b>Measured Results</b>         |                                  |
|---------------------------------|----------------------------------|
|                                 | EL-SL18MA-80W CLASS I T3VS 4000K |
| <b>Total luminous flux (lm)</b> | 11298                            |
| <b>Input wattage (W)</b>        | 78.94                            |
| <b>Input current (A)</b>        | 0.3641                           |
| <b>Frequency (Hz)</b>           | 50                               |
| <b>Power factor</b>             | 0.9857                           |
| <b>Efficacy (Lm/W)</b>          | 143.13                           |
| <b>CCT (K)</b>                  | 3899                             |
| <b>Chromaticity x</b>           | 0.3850                           |
| <b>Chromaticity y</b>           | 0.3796                           |
| <b>Chromaticity u'</b>          | 0.2270                           |
| <b>Chromaticity v'</b>          | 0.5035                           |
| <b>CRI</b>                      | 72.9                             |
| <b>R9</b>                       | 0                                |
| <b>Du'v' (Max.)</b>             | -0.00000662                      |
| <b>THDI(%)</b>                  | 4.683                            |
| <b>LCS BUG Rating</b>           | B2-U0-G2, Semi cut-off           |

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**Spectral power distribution: (Clause 10 of LM-79)**

EL-SL18MA-80W CLASS I T3VS 4000K



**Dominant WL: 579.4nm**  
**Peak WL: 450nm**

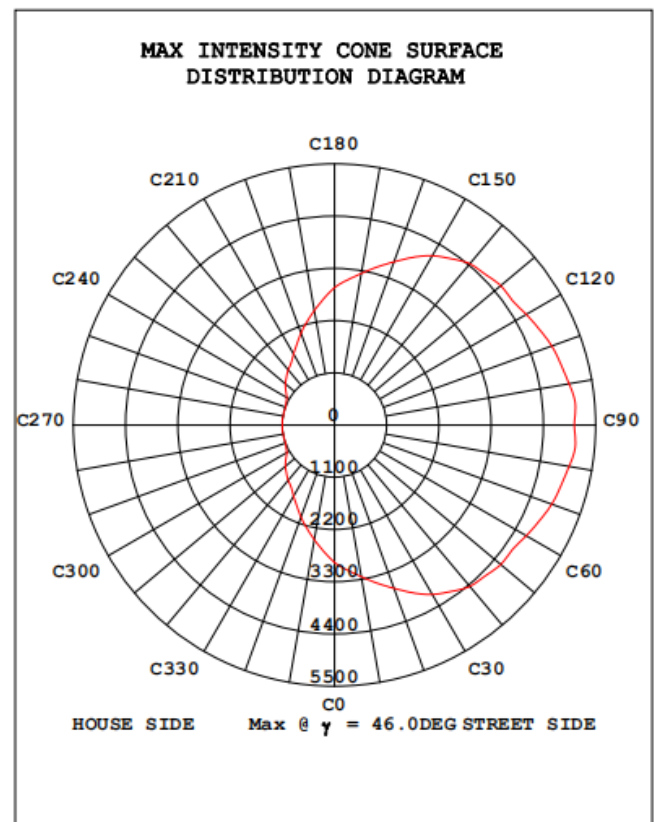
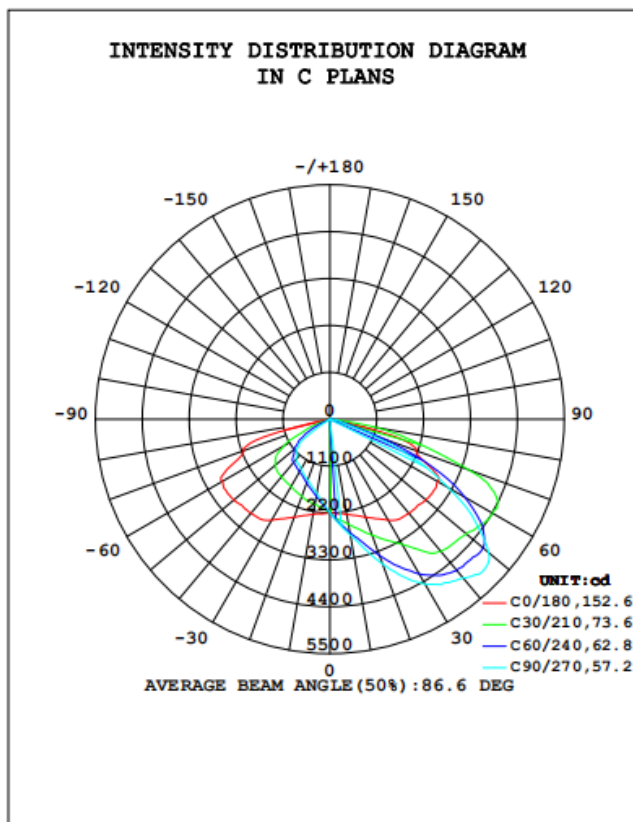
**Luminous Intensity Distribution, Ambient temperature: 25°C (Clause 10 of LM-79)**

| Description                     | Data                             |
|---------------------------------|----------------------------------|
| Model                           | EL-SL18MA-80W CLASS I T3VS 4000K |
| Test voltage (V)                | 220VAC                           |
| Test current (A)                | 0.3641                           |
| Test wattage (W)                | 78.94                            |
| Frequency (Hz)                  | 50                               |
| Power factor                    | 0.9857                           |
| Central luminous intensity (cd) | 2193.9                           |
| Max. luminous intensity(cd)     | 5091.9<br>(C=5, Gamma=46)        |

For the distribution curve see next page.

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| DATA OF LAMP      |           | PHOTOMETRIC DATA      |        |                   |         | Eff: 143.13 lm/W |
|-------------------|-----------|-----------------------|--------|-------------------|---------|------------------|
| MODEL             | EL-SL18MA | I <sub>max</sub> (cd) | 5091.9 | η street_up (%)   | 0.0     |                  |
| NOMINAL POWER (W) | 80        | LOR (%)               | 100.0  | η street_down (%) | 73.6    |                  |
| RATED VOLTAGE (V) | 220-240   | TOTAL FLUX (lm)       | 11298  | η house_up (%)    | 0.0     |                  |
| NOMINAL FLUX (lm) | 11298.4   | MAXIMUM @ (C, γ )     | 5,46.0 | η house_down (%)  | 26.4    |                  |
| LAMPS INSIDE      | 1         | η up (%)              | 0.0    | 76 FLASHAREA (m2) | 0.05000 |                  |
| TEST VOLTAGE (V)  | 220       | η down (%)            | 100.0  | SLI               | 19.908  |                  |



**Zonal Lumen Summary and Percentages****Zonal Lumen Summary**

| Zone    | Lumens   | %Lamp  | %Fixt  |
|---------|----------|--------|--------|
| 0-20    | 884.69   | 7.80   | 7.80   |
| 0-30    | 2094.67  | 18.50  | 18.50  |
| 0-40    | 3892.65  | 34.50  | 34.50  |
| 0-60    | 8582.64  | 76.00  | 76.00  |
| 0-80    | 11224.74 | 99.40  | 99.30  |
| 0-90    | 11298.45 | 100.00 | 100.00 |
| 10-90   | 11085.15 | 98.10  | 98.10  |
| 20-40   | 3007.96  | 26.60  | 26.60  |
| 20-50   | 5283.2   | 46.80  | 46.80  |
| 40-70   | 6562.11  | 58.10  | 58.10  |
| 60-80   | 2642.11  | 23.40  | 23.40  |
| 70-80   | 769.99   | 6.80   | 6.80   |
| 80-90   | 73.70    | 0.70   | 0.70   |
| 90-110  | 0.00     | 0.00   | 0.00   |
| 90-120  | 0.00     | 0.00   | 0.00   |
| 90-130  | 0.00     | 0.00   | 0.00   |
| 90-150  | 0.00     | 0.00   | 0.00   |
| 90-180  | 0.00     | 0.00   | 0.00   |
| 110-180 | 0.00     | 0.00   | 0.00   |
| 0-180   | 11298.45 | 100.00 | 100.00 |

Total Luminaire Efficiency = 100.00%



## Prüfbericht Nr. / Test report no. 60397046 001

## Luminous Intensity Distribution Data

Tool View EL-S18MA 80W CLASS I T3VS 4000KIES

Keywords

Candela

20

30

Vertical Angles

Horizontal Angles

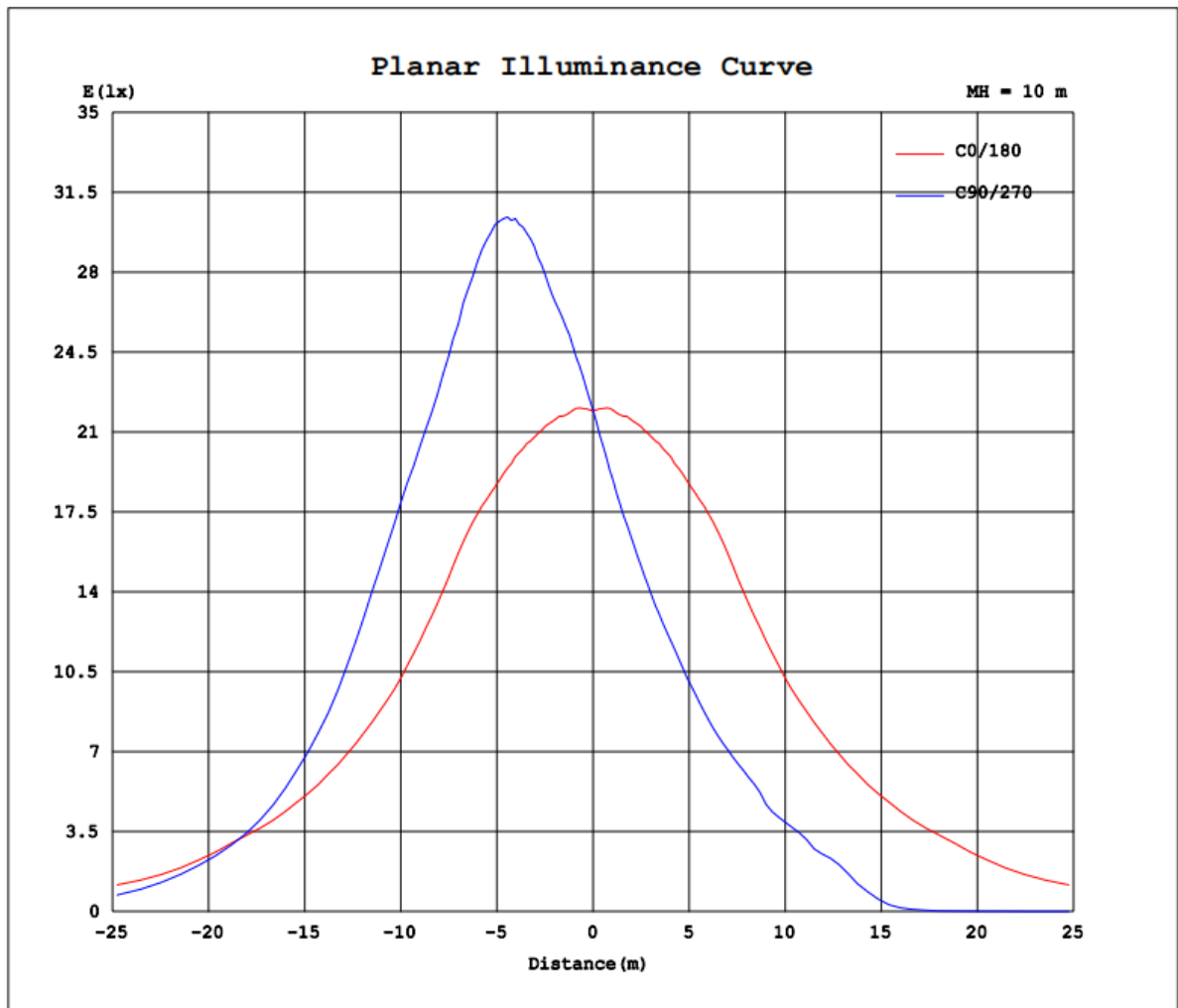
Multiplier=1

Max Cd

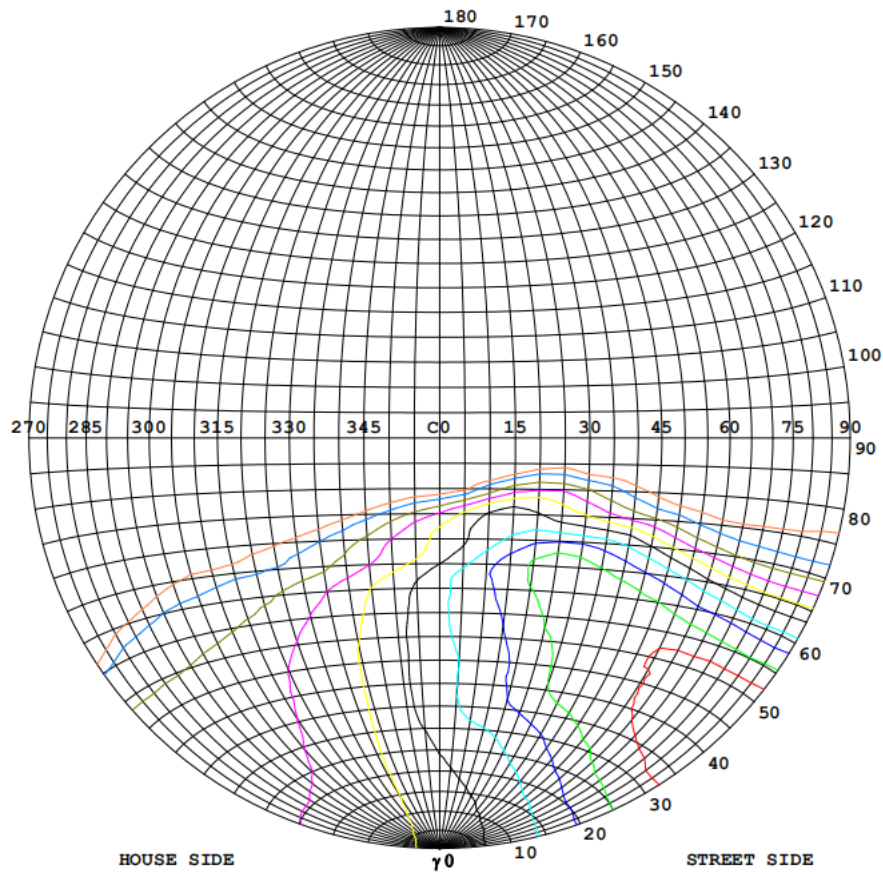
|    | 0    | 5   | 10   | 15  | 20   | 25  | 30   | 35  | 40   | 45  | 50   | 55  | 60   | 65  | 70   | 75   | 80   | 85   | 90   | 95   | 100  | 105  |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |     |
|----|------|-----|------|-----|------|-----|------|-----|------|-----|------|-----|------|-----|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|-----|
| 28 | 4318 | 300 | 4311 | 400 | 4309 | 500 | 4222 | 400 | 4191 | 700 | 4134 | 100 | 4022 | 300 | 3931 | 400  | 3829 | 500  | 3679 | 200  | 3552 | 600  | 3401 | 800  | 3277 | 900  | 3137 | 1000 | 3032 | 800  | 2953 | 1000 | 2855 | 000  | 2767 | 900  | 2662 | 300  | 2504 | 800  | 2381 | 200  | 2257 | 200 |
| 29 | 4393 | 000 | 4386 | 800 | 4390 | 100 | 4292 | 400 | 4260 | 700 | 4207 | 600 | 4122 | 800 | 4001 | 900  | 3891 | 000  | 3758 | 400  | 3613 | 400  | 3461 | 500  | 3332 | 900  | 3186 | 100  | 3073 | 200  | 2981 | 900  | 2808 | 100  | 2694 | 300  | 2528 | 500  | 2400 | 800  | 2265 | 200  | 2135 | 000 |
| 30 | 4465 | 200 | 4454 | 100 | 4459 | 800 | 4353 | 900 | 4339 | 400 | 4282 | 800 | 4187 | 900 | 4034 | 300  | 3946 | 100  | 3830 | 500  | 3677 | 600  | 3503 | 600  | 3389 | 800  | 3235 | 500  | 3126 | 800  | 3027 | 400  | 2952 | 300  | 2853 | 000  | 2736 | 100  | 2587 | 200  | 2415 | 600  | 2269 | 800 |
| 31 | 4520 | 500 | 4520 | 600 | 4500 | 200 | 4432 | 200 | 4439 | 400 | 4339 | 400 | 4256 | 300 | 4095 | 100  | 4023 | 300  | 3892 | 500  | 3738 | 600  | 3579 | 300  | 3457 | 900  | 3304 | 100  | 3196 | 900  | 3087 | 700  | 3003 | 500  | 2895 | 500  | 2765 | 200  | 2586 | 800  | 2429 | 500  | 2266 | 100 |
| 32 | 4562 | 200 | 4579 | 300 | 4574 | 300 | 4508 | 400 | 4471 | 800 | 4394 | 500 | 4178 | 500 | 4083 | 000  | 3946 | 600  | 3823 | 000  | 3657 | 500  | 3522 | 500  | 3380 | 700  | 3271 | 300  | 3144 | 300  | 3058 | 300  | 2936 | 600  | 2796 | 600  | 2628 | 100  | 2438 | 500  | 2271 | 300  | 2137 | 000 |
| 33 | 4622 | 100 | 4623 | 800 | 4627 | 900 | 4556 | 400 | 4519 | 000 | 4461 | 800 | 4362 | 200 | 4226 | 800  | 4134 | 300  | 4001 | 500  | 3884 | 000  | 3731 | 400  | 3600 | 400  | 3457 | 900  | 3336 | 600  | 3204 | 400  | 3102 | 200  | 2977 | 100  | 2822 | 800  | 2680 | 100  | 2446 | 800  | 2284 | 100 |
| 34 | 4678 | 500 | 4655 | 400 | 4661 | 800 | 4607 | 500 | 4566 | 900 | 4510 | 400 | 4446 | 000 | 4294 | 000  | 4183 | 800  | 4064 | 200  | 3955 | 400  | 3795 | 300  | 3680 | 800  | 3533 | 600  | 3410 | 400  | 3266 | 900  | 3144 | 300  | 3011 | 200  | 2843 | 200  | 2640 | 200  | 2452 | 900  | 2287 | 500 |
| 35 | 4738 | 000 | 4700 | 500 | 4687 | 200 | 4628 | 400 | 4608 | 400 | 4552 | 500 | 4476 | 800 | 4328 | 4245 | 101  | 4129 | 600  | 4003 | 200  | 3890 | 200  | 3771 | 600  | 3599 | 900  | 3465 | 700  | 3318 | 400  | 3186 | 500  | 3020 | 100  | 2856 | 300  | 2659 | 300  | 2456 | 800  | 2274 | 700  |     |
| 36 | 4742 | 000 | 4734 | 000 | 4738 | 300 | 4653 | 200 | 4638 | 400 | 4584 | 700 | 4513 | 600 | 4433 | 400  | 4311 | 100  | 4176 | 700  | 4063 | 100  | 3960 | 600  | 3956 | 500  | 3682 | 700  | 3522 | 800  | 3352 | 600  | 3193 | 200  | 3032 | 200  | 2863 | 200  | 2656 | 700  | 2460 | 300  | 2273 | 300 |
| 37 | 4760 | 000 | 4740 | 200 | 4761 | 700 | 4677 | 800 | 4666 | 400 | 4636 | 600 | 4538 | 300 | 4390 | 100  | 4370 | 800  | 4246 | 700  | 4134 | 100  | 4023 | 400  | 3944 | 800  | 3748 | 300  | 3562 | 200  | 3362 | 600  | 3195 | 300  | 3051 | 100  | 2863 | 400  | 2662 | 100  | 2463 | 000  | 2273 | 700 |
| 38 | 4802 | 400 | 4785 | 700 | 4785 | 000 | 4702 | 300 | 4714 | 300 | 4641 | 100 | 4578 | 500 | 4475 | 200  | 4419 | 300  | 4294 | 100  | 4211 | 100  | 4088 | 800  | 3985 | 100  | 3791 | 200  | 3575 | 000  | 3385 | 300  | 3209 | 800  | 3063 | 500  | 2867 | 800  | 2666 | 000  | 2466 | 600  | 2278 | 500 |
| 39 | 4824 | 000 | 4830 | 900 | 4806 | 800 | 4736 | 900 | 4723 | 900 | 4648 | 600 | 4570 | 400 | 4491 | 468  | 900  | 4411 | 428  | 900  | 414  | 400  | 419  | 500  | 4061 | 500  | 3809 | 300  | 3593 | 500  | 3408 | 400  | 3231 | 600  | 3063 | 300  | 2875 | 100  | 2671 | 000  | 2471 | 800  | 2274 | 400 |
| 40 | 4863 | 200 | 4880 | 700 | 4835 | 500 | 4769 | 400 | 4753 | 000 | 4657 | 000 | 4628 | 700 | 4539 | 400  | 4526 | 800  | 4399 | 600  | 4310 | 300  | 4195 | 000  | 4047 | 300  | 3814 | 700  | 3613 | 200  | 3407 | 700  | 3225 | 700  | 3057 | 000  | 2878 | 800  | 2677 | 700  | 2469 | 400  | 2274 | 700 |
| 41 | 4917 | 400 | 4917 | 300 | 4884 | 500 | 4797 | 000 | 4771 | 900 | 4672 | 900 | 4628 | 800 | 4549 | 200  | 4534 | 700  | 4438 | 000  | 4339 | 200  | 4210 | 900  | 4063 | 300  | 3847 | 000  | 3639 | 100  | 3419 | 700  | 3227 | 000  | 3058 | 800  | 2889 | 800  | 2674 | 400  | 2474 | 000  | 2284 | 300 |
| 42 | 4962 | 000 | 4954 | 100 | 4906 | 500 | 4836 | 600 | 4787 | 900 | 4712 | 400 | 4658 | 100 | 4560 | 300  | 4561 | 100  | 4463 | 100  | 4373 | 600  | 4233 | 500  | 4085 | 500  | 3862 | 700  | 3648 | 900  | 3432 | 400  | 3226 | 500  | 3056 | 900  | 2887 | 300  | 2675 | 700  | 2472 | 800  | 2280 | 500 |
| 43 | 4991 | 300 | 4985 | 700 | 4943 | 500 | 4870 | 400 | 4815 | 700 | 4709 | 500 | 4646 | 000 | 4553 | 800  | 4563 | 800  | 4495 | 900  | 4393 | 400  | 4240 | 700  | 4093 | 700  | 3858 | 000  | 3635 | 800  | 3420 | 900  | 3233 | 500  | 3054 | 900  | 2893 | 000  | 2688 | 400  | 2469 | 900  | 2278 | 400 |
| 44 | 5046 | 800 | 5035 | 900 | 4989 | 100 | 4883 | 400 | 4835 | 500 | 4738 | 500 | 4662 | 100 | 4573 | 200  | 4555 | 800  | 4510 | 400  | 4407 | 400  | 4255 | 800  | 4104 | 700  | 3861 | 000  | 3641 | 000  | 3423 | 500  | 3217 | 200  | 3050 | 500  | 2896 | 600  | 2681 | 500  | 2470 | 400  | 2273 | 300 |
| 45 | 5062 | 500 | 5059 | 200 | 4996 | 300 | 4908 | 200 | 4850 | 000 | 4775 | 100 | 4654 | 000 | 4563 | 300  | 4533 | 900  | 4505 | 100  | 4427 | 400  | 4255 | 200  | 4122 | 600  | 3888 | 300  | 3635 | 800  | 3435 | 700  | 3232 | 300  | 3055 | 400  | 2889 | 400  | 2664 | 300  | 2467 | 700  | 2265 | 500 |
| 46 | 5049 | 900 | 5091 | 300 | 5015 | 200 | 4936 | 600 | 4863 | 100 | 4762 | 400 | 4654 | 200 | 4547 | 400  | 4570 | 100  | 4489 | 200  | 4435 | 000  | 4277 | 400  | 4119 | 200  | 3896 | 500  | 3658 | 400  | 3444 | 600  | 3231 | 300  | 3065 | 600  | 2894 | 000  | 2667 | 100  | 2452 | 800  | 2252 | 700 |
| 47 | 5041 | 000 | 5060 | 500 | 5007 | 500 | 4936 | 700 | 4869 | 000 | 4768 | 500 | 4662 | 900 | 4574 | 000  | 4568 | 400  | 4492 | 100  | 4445 | 000  | 4296 | 500  | 4127 | 600  | 3896 | 200  | 3668 | 800  | 3458 | 300  | 3255 | 500  | 3084 | 600  | 2911 | 100  | 2671 | 100  | 2452 | 000  | 2245 | 100 |
| 48 | 5067 | 300 | 4980 | 400 | 4972 | 100 | 4908 | 900 | 4852 | 500 | 4775 | 600 | 4706 | 000 | 4594 | 300  | 4596 | 300  | 4507 | 300  | 4446 | 200  | 4308 | 300  | 4142 | 800  | 3917 | 400  | 3689 | 700  | 3482 | 100  | 3258 | 800  | 3095 | 400  | 2928 | 200  | 2678 | 900  | 2449 | 800  | 2244 | 600 |
| 49 | 4996 | 700 | 4934 | 500 | 4910 | 000 | 4863 | 100 | 4839 | 400 | 4783 | 400 | 4709 | 000 | 4593 | 500  | 4593 | 900  | 4486 | 200  | 4399 | 300  | 4314 | 700  | 4163 | 900  | 3944 | 600  | 3715 | 300  | 3500 | 100  | 3278 | 800  | 3115 | 200  | 2932 | 700  | 2675 | 100  | 2455 | 200  | 2242 | 400 |
| 50 | 4859 | 400 | 4857 | 000 | 4813 | 200 | 4792 | 800 | 4773 | 800 | 4719 | 700 | 4691 | 000 | 4596 | 100  | 4596 | 300  | 4525 | 700  | 4460 | 100  | 4346 | 000  | 4181 | 900  | 3969 | 000  | 3734 | 300  | 3518 | 600  | 3287 | 200  | 3134 | 700  | 2948 | 300  | 2680 | 100  | 2456 | 900  | 2228 | 000 |
| 51 | 4744 | 500 | 4708 | 900 | 4698 | 800 | 4693 | 000 | 4622 | 400 | 4614 | 400 | 4617 | 000 | 4592 | 700  | 4592 | 700  | 4502 | 700  | 4460 | 400  | 4357 | 400  | 4198 | 900  | 3995 | 800  | 3760 | 000  | 3542 | 000  | 3317 | 300  | 3134 | 400  | 2943 | 100  | 2671 | 000  | 2460 | 000  | 2217 | 400 |
| 52 | 4618 | 300 | 4563 | 100 | 4565 | 300 | 4544 | 000 | 4604 | 900 | 4592 | 700 | 4506 | 900 | 4579 | 800  | 4549 | 600  | 4518 | 300  | 4483 | 200  | 4371 | 900  | 4254 | 800  | 4043 | 700  | 3784 | 900  | 3552 | 700  | 3332 | 300  | 3161 | 300  | 2958 | 900  | 2674 | 000  | 2444 | 700  | 2197 | 900 |
| 53 | 4473 | 700 | 4415 | 700 | 4420 | 900 | 4478 | 400 | 4481 | 400 | 4498 | 100 | 4534 | 000 | 4554 | 500  | 4557 | 700  | 4539 | 900  | 4487 | 400  | 4394 | 700  | 4271 | 500  | 4083 | 800  | 3817 | 900  | 3566 | 700  | 3350 | 300  | 3140 | 400  | 2954 | 700  | 2677 | 200  | 2426 | 500  | 2183 | 700 |
| 54 | 4294 | 700 | 4274 | 000 | 4255 | 100 | 4299 | 800 | 4352 | 400 | 4396 | 200 | 4448 | 600 | 4492 | 700  | 4522 | 600  | 4548 | 800  | 4515 | 800  | 4398 | 200  | 4301 | 100  | 4096 | 800  | 3862 | 600  | 3584 | 400  | 3368 | 500  | 3167 | 500  | 2970 | 300  | 2665 | 600  | 2413 | 100  | 2164 | 900 |
| 55 | 4137 | 000 | 4123 | 900 | 4092 | 600 | 4147 | 000 | 4195 | 200 | 4286 | 100 | 4381 | 600 | 4428 | 800  | 4483 | 000  | 4504 | 500  | 4524 | 400  | 4440 | 300  | 4328 | 800  | 4120 | 800  | 3875 | 900  | 3605 | 400  | 3375 | 600  | 3181 | 900  | 2954 | 000  | 2666 | 300  | 2394 | 100  | 2143 | 400 |
| 56 | 4002 | 900 | 3964 | 200 | 3936 | 600 | 3975 | 000 | 4050 | 300 | 4137 | 800 | 4244 | 300 | 4339 | 300  | 4459 | 300  | 4464 | 400  | 4506 | 300  | 4470 | 200  | 4359 | 200  | 4158 | 200  | 3906 | 500  | 3621 | 100  | 3402 | 100  | 3189 | 600  | 2960 | 500  | 2664 | 500  | 2384 | 700  | 2128 | 700 |
| 57 | 3840 | 800 | 3760 | 300 | 3780 | 600 | 3948 | 700 | 3921 | 700 | 4005 | 900 | 4104 | 400 | 4252 | 300  | 4394 | 200  | 4474 | 600  | 4504 | 400  | 4490 | 300  | 4379 | 800  | 4181 | 700  | 3946 | 200  | 3651 | 600  | 3410 | 300  | 3191 | 600  | 2965 | 800  | 2649 | 100  | 2368 | 000  | 2118 | 900 |
| 58 | 3636 | 400 | 3683 | 100 | 3602 | 200 | 3682 | 900 | 3773 | 800 | 3858 | 700 | 3964 | 500 | 4135 | 600  | 4308 | 400  | 4437 | 400  | 4470 | 400  | 4490 | 200  | 4402 | 700  | 4197 | 000  | 3978 | 700  | 3693 | 000  | 3428 | 400  | 3195 | 500  | 2947 | 100  | 2647 | 200  | 2362 | 000  | 2104 | 200 |
| 59 | 3415 | 300 | 3379 | 300 | 3389 | 300 | 3466 | 100 | 3595 | 600 | 3697 | 100 | 3809 | 900 | 3994 | 100  | 4206 | 900  | 4321 | 400  | 4438 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |     |

| Tool View EL-SL18MA 80W CLASS I T3V5 4000KIES |         |                   |         |         |         |              |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |   |
|---|---------|-------------------|---------|---------|---------|--------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---|
| Keywords                                      |         |                   |         |         |         |              | Candela |         |         |         |         |         |         | 2D      |         |         |         |         |         |         | 3D      |         |         |   |
| Vertical Angles                               |         | Horizontal Angles |         |         |         | Multiplier=1 | Max Cd  |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |   |
|   | 255     | 260               | 265     | 270     | 275     | 280          | 285     | 290     | 295     | 300     | 305     | 310     | 315     | 320     | 325     | 330     | 335     | 340     | 345     | 350     | 355     | 360     | ↕       |   |
| 25  | 2230.80 | 2344.20           | 2437.90 | 2574.80 | 2659.90 | 2764.70      | 2838.20 | 2928.50 | 3011.60 | 3124.90 | 3237.80 | 3346.80 | 3484.00 | 3615.70 | 3703.30 | 3801.30 | 3911.40 | 4034.00 | 3988.30 | 3996.90 | 4045.50 | 4068.70 | 4075.90 | ↕ |
| 26  | 2242.20 | 2360.40           | 2460.90 | 2599.80 | 2688.90 | 2801.60      | 2868.90 | 2957.80 | 3055.20 | 3178.50 | 3292.70 | 3417.00 | 3543.10 | 3689.60 | 3776.60 | 3887.10 | 3991.10 | 4034.00 | 4081.80 | 4126.20 | 4163.60 | 4163.10 | ↕       |   |
| 27  | 2253.20 | 2368.60           | 2484.80 | 2623.90 | 2728.30 | 2813.20      | 2903.30 | 3000.30 | 3103.20 | 3227.20 | 3349.70 | 3470.20 | 3612.80 | 3755.80 | 3860.80 | 3963.50 | 4027.50 | 4117.10 | 4195.90 | 4222.70 | 4239.00 | 4237.00 | 4252.90 | ↕ |
| 28  | 2257.20 | 2381.20           | 2504.80 | 2652.90 | 2767.90 | 2855.00      | 2953.10 | 3032.80 | 3137.00 | 3277.90 | 3401.80 | 3552.60 | 3679.20 | 3829.50 | 3931.40 | 4022.30 | 4134.10 | 4191.70 | 4222.20 | 4309.50 | 4311.40 | 4318.30 | ↕       |   |
| 29  | 2265.20 | 2400.80           | 2528.50 | 2684.90 | 2807.40 | 2908.10      | 2987.40 | 3073.20 | 3186.10 | 3332.80 | 3451.60 | 3613.40 | 3758.40 | 3891.00 | 4001.90 | 4122.80 | 4207.60 | 4260.70 | 4282.40 | 4390.10 | 4386.80 | 4393.00 | ↕       |   |
| 30  | 2269.80 | 2415.60           | 2557.20 | 2726.10 | 2853.80 | 2952.90      | 3021.40 | 3126.80 | 3235.50 | 3389.80 | 3509.30 | 3677.60 | 3830.50 | 3946.10 | 4034.30 | 4187.90 | 4282.60 | 4338.30 | 4363.90 | 4459.80 | 4454.10 | 4465.20 | ↕       |   |
| 31  | 2266.10 | 2429.50           | 2568.80 | 2765.20 | 2895.30 | 3003.50      | 3087.70 | 3196.90 | 3304.10 | 3457.90 | 3579.30 | 3758.90 | 3892.30 | 4023.30 | 4095.10 | 4256.30 | 4333.50 | 4395.40 | 4432.20 | 4500.20 | 4520.60 | 4520.50 | ↕       |   |
| 32  | 2271.30 | 2438.50           | 2608.10 | 2796.60 | 2936.80 | 3058.30      | 3144.30 | 3271.30 | 3380.70 | 3522.50 | 3657.50 | 3823.00 | 3946.60 | 4083.00 | 4178.50 | 4310.90 | 4393.50 | 4434.00 | 4471.80 | 4508.40 | 4529.20 | 4562.20 | ↕       |   |
| 33  | 2284.10 | 2446.80           | 2622.10 | 2822.80 | 2977.10 | 3102.60      | 3264.40 | 3336.60 | 3457.90 | 3600.40 | 3731.40 | 3884.00 | 4001.50 | 4134.30 | 4226.80 | 4362.20 | 4461.80 | 4519.00 | 4556.30 | 4627.80 | 4622.10 | ↕       |         |   |
| 34  | 2287.50 | 2452.90           | 2640.90 | 2842.30 | 3011.20 | 3144.70      | 3265.90 | 3410.40 | 3533.60 | 3680.80 | 3795.30 | 3955.40 | 4064.20 | 4183.80 | 4294.00 | 4416.80 | 4501.50 | 4566.90 | 4607.50 | 4661.90 | 4653.80 | ↕       |         |   |
| 35  | 2274.70 | 2456.80           | 2659.30 | 2856.30 | 3020.10 | 3186.50      | 3312.40 | 3465.70 | 3599.90 | 3771.60 | 3890.20 | 4003.20 | 4126.30 | 4245.10 | 4338.20 | 4474.40 | 4552.70 | 4608.40 | 4628.20 | 4687.20 | 4700.50 | 4683.50 | ↕       |   |
| 36  | 2273.30 | 2460.30           | 2656.70 | 2863.20 | 3032.00 | 3193.20      | 3358.60 | 3682.70 | 3856.50 | 3960.60 | 4063.10 | 4175.30 | 4311.10 | 4393.60 | 4513.60 | 4594.70 | 4636.90 | 4653.20 | 4687.30 | 4730.40 | 4740.00 | ↕       |         |   |
| 37  | 2273.70 | 2463.00           | 2662.10 | 2863.40 | 3051.10 | 3195.70      | 3385.60 | 3562.20 | 3748.30 | 3934.80 | 4029.40 | 4134.10 | 4246.70 | 4370.80 | 4450.10 | 4538.30 | 4636.60 | 4686.20 | 4677.80 | 4761.70 | 4740.20 | 4752.00 | ↕       |   |
| 38  | 2278.50 | 2466.60           | 2666.80 | 2867.80 | 3063.50 | 3209.80      | 3385.30 | 3575.00 | 3791.20 | 3985.10 | 4098.80 | 4211.70 | 4394.20 | 4475.20 | 4578.50 | 4641.10 | 4714.30 | 4702.30 | 4785.00 | 4785.70 | 4802.40 | ↕       |         |   |
| 39  | 2274.40 | 2471.80           | 2671.00 | 2875.10 | 3063.80 | 3231.50      | 3408.40 | 3593.50 | 3809.30 | 4016.50 | 4149.50 | 4269.70 | 4398.10 | 4468.90 | 4491.10 | 4600.90 | 4684.70 | 4722.90 | 4736.90 | 4806.80 | 4830.90 | 4824.50 | ↕       |   |
| 40  | 2274.70 | 2469.40           | 2677.70 | 2878.80 | 3057.00 | 3225.70      | 3407.70 | 3613.20 | 3814.70 | 4040.30 | 4195.00 | 4310.30 | 4398.60 | 4456.80 | 4539.40 | 4628.70 | 4667.00 | 4759.00 | 4769.40 | 4835.50 | 4860.70 | 4863.20 | ↕       |   |
| 41  | 2284.30 | 2474.00           | 2674.40 | 2889.80 | 3058.80 | 3227.00      | 3411.90 | 3633.10 | 3847.00 | 4063.00 | 4219.10 | 4339.20 | 4463.10 | 4534.00 | 4594.20 | 4628.80 | 4712.90 | 4771.90 | 4797.00 | 4884.50 | 4917.30 | 4917.40 | ↕       |   |
| 42  | 2290.50 | 2472.80           | 2675.70 | 2889.30 | 3057.30 | 3226.50      | 3432.40 | 3648.90 | 3862.70 | 4085.00 | 4233.50 | 4379.60 | 4463.10 | 4531.70 | 4590.20 | 4658.10 | 4712.40 | 4787.90 | 4836.60 | 4904.50 | 4954.10 | 4962.00 | ↕       |   |
| 43  | 2278.40 | 2468.90           | 2668.40 | 2883.00 | 3054.90 | 3233.50      | 3429.30 | 3635.80 | 3859.00 | 4093.70 | 4240.70 | 4393.10 | 4455.90 | 4553.80 | 4563.80 | 4646.00 | 4709.50 | 4815.70 | 4870.40 | 4949.50 | 4985.70 | 4946.80 | ↕       |   |
| 44  | 2283.20 | 2470.40           | 2671.50 | 2893.60 | 3060.50 | 3217.20      | 3423.50 | 3641.00 | 3861.00 | 4104.70 | 4255.80 | 4407.40 | 4510.40 | 4565.80 | 4573.20 | 4652.10 | 4738.50 | 4835.50 | 4883.40 | 4949.00 | 5035.90 | 5046.80 | ↕       |   |
| 45  | 2265.50 | 2467.70           | 2664.30 | 2889.40 | 3055.40 | 3232.30      | 3435.70 | 3635.80 | 3888.30 | 4112.60 | 4255.20 | 4427.40 | 4505.10 | 4533.90 | 4563.30 | 4664.00 | 4730.50 | 4785.00 | 4850.00 | 4909.20 | 5016.20 | 5052.90 | ↕       |   |
| 46  | 2252.70 | 2452.80           | 2667.70 | 2894.00 | 3065.60 | 3241.30      | 3446.60 | 3658.40 | 3936.50 | 4119.27 | 4277.40 | 4425.00 | 4498.20 | 4570.10 | 4574.40 | 4664.20 | 4762.40 | 4863.10 | 4936.60 | 5095.20 | 5091.30 | 5049.90 | ↕       |   |
| 47  | 2245.10 | 2452.00           | 2671.10 | 2911.10 | 3084.60 | 3255.50      | 3458.30 | 3668.80 | 3896.20 | 4122.00 | 4296.50 | 4444.50 | 4542.10 | 4558.40 | 4547.00 | 4632.70 | 4768.50 | 4868.00 | 4953.70 | 5007.50 | 5060.50 | 5041.00 | ↕       |   |
| 48  | 2244.60 | 2449.80           | 2678.90 | 2928.20 | 3095.40 | 3258.80      | 3482.10 | 3688.70 | 3919.40 | 4142.80 | 4308.30 | 4446.20 | 4507.30 | 4556.30 | 4594.70 | 4706.00 | 4785.50 | 4852.50 | 4908.90 | 5027.10 | 4984.00 | 5007.30 | ↕       |   |
| 49  | 2242.40 | 2455.20           | 2675.10 | 2932.70 | 3115.20 | 3278.80      | 3500.10 | 3715.30 | 3947.60 | 4163.90 | 4314.70 | 4439.90 | 4486.20 | 4553.90 | 4597.00 | 4703.00 | 4785.50 | 4833.30 | 4863.10 | 4913.00 | 4934.50 | 4956.70 | ↕       |   |
| 50  | 2228.00 | 2456.90           | 2680.10 | 2948.30 | 3134.70 | 3287.20      | 3518.60 | 3734.30 | 3963.00 | 4181.90 | 4345.40 | 4460.10 | 4502.10 | 4556.30 | 4596.10 | 4691.00 | 4719.70 | 4779.80 | 4792.80 | 4813.20 | 4857.00 | 4859.40 | ↕       |   |
| 51  | 2217.40 | 2460.00           | 2691.70 | 2943.10 | 3143.00 | 3315.70      | 3542.00 | 3760.90 | 3995.60 | 4198.90 | 4357.40 | 4467.40 | 4525.70 | 4537.30 | 4592.70 | 4687.80 | 4691.40 | 4712.40 | 4683.00 | 4696.80 | 4708.30 | 4744.50 | ↕       |   |
| 52  | 2197.50 | 2444.70           | 2674.00 | 2958.90 | 3161.30 | 3332.30      | 3562.70 | 3794.90 | 4043.70 | 4254.80 | 4391.70 | 4493.20 | 4518.30 | 4549.60 | 4579.80 | 4605.90 | 4632.50 | 4592.30 | 4604.90 | 4574.00 | 4565.30 | 4618.30 | ↕       |   |
| 53  | 2183.70 | 2426.50           | 2677.20 | 2954.70 | 3174.00 | 3350.50      | 3596.70 | 3817.90 | 4083.80 | 4271.50 | 4394.70 | 4487.50 | 4539.90 | 4547.90 | 4554.90 | 4594.00 | 4498.10 | 4481.40 | 4445.70 | 4445.30 | 4455.70 | 4453.70 | ↕       |   |
| 54  | 2164.90 | 2419.10           | 2665.60 | 2970.30 | 3167.50 | 3368.50      | 3684.40 | 3862.60 | 4096.80 | 4310.00 | 4398.20 | 4514.80 | 4548.80 | 4522.60 | 4432.70 | 4448.80 | 4390.30 | 4352.00 | 4299.80 | 4255.10 | 4214.00 | 4294.70 | ↕       |   |
| 55  | 2143.40 | 2394.10           | 2666.80 | 2934.00 | 3187.30 | 3375.60      | 3650.40 | 3875.90 | 4120.80 | 4312.80 | 4400.50 | 4515.40 | 4504.80 | 4463.00 | 4428.80 | 4381.00 | 4286.10 | 4195.20 | 4147.00 | 4092.60 | 4123.90 | 4157.70 | ↕       |   |
| 56  | 2128.70 | 2384.70           | 2664.50 | 2905.00 | 3189.60 | 3402.10      | 3621.10 | 3906.50 | 4158.20 | 4359.20 | 4470.20 | 4506.30 | 4474.60 | 4459.30 | 4339.30 | 4244.90 | 4137.30 | 4050.30 | 3975.00 | 3936.60 | 3964.20 | 4002.90 | ↕       |   |
| 57  | 2119.90 | 2369.90           | 2644.10 | 2885.00 | 3191.90 | 3419.90      | 3651.90 | 3934.90 | 4181.90 | 4379.90 | 4479.90 | 4504.90 | 4474.90 | 4459.90 | 4349.90 | 4267.90 | 4151.90 | 4035.90 | 3921.90 | 3849.90 | 3799.90 | 3840.90 | ↕       |   |





## STREETLIGHT ISOCANDELA DIAGRAM

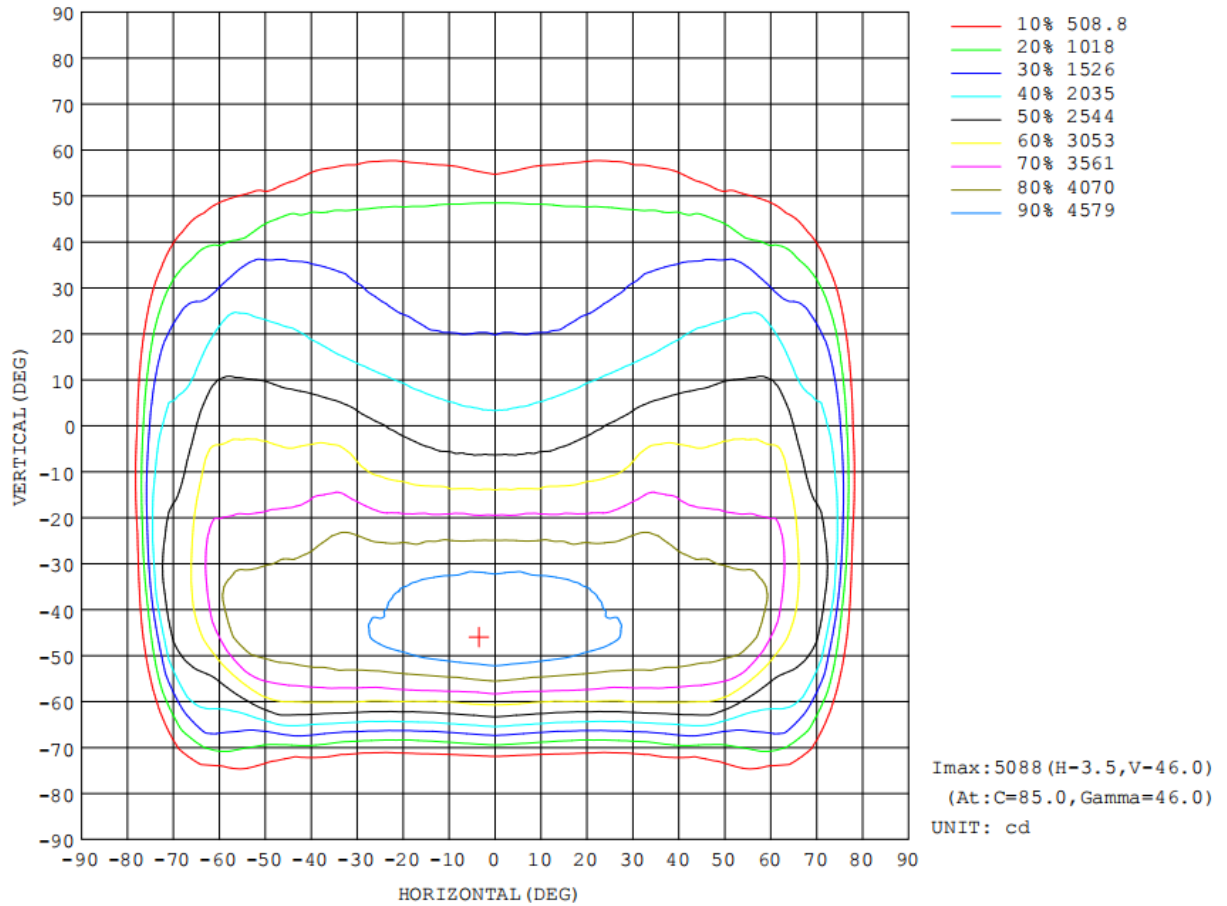


Classification:

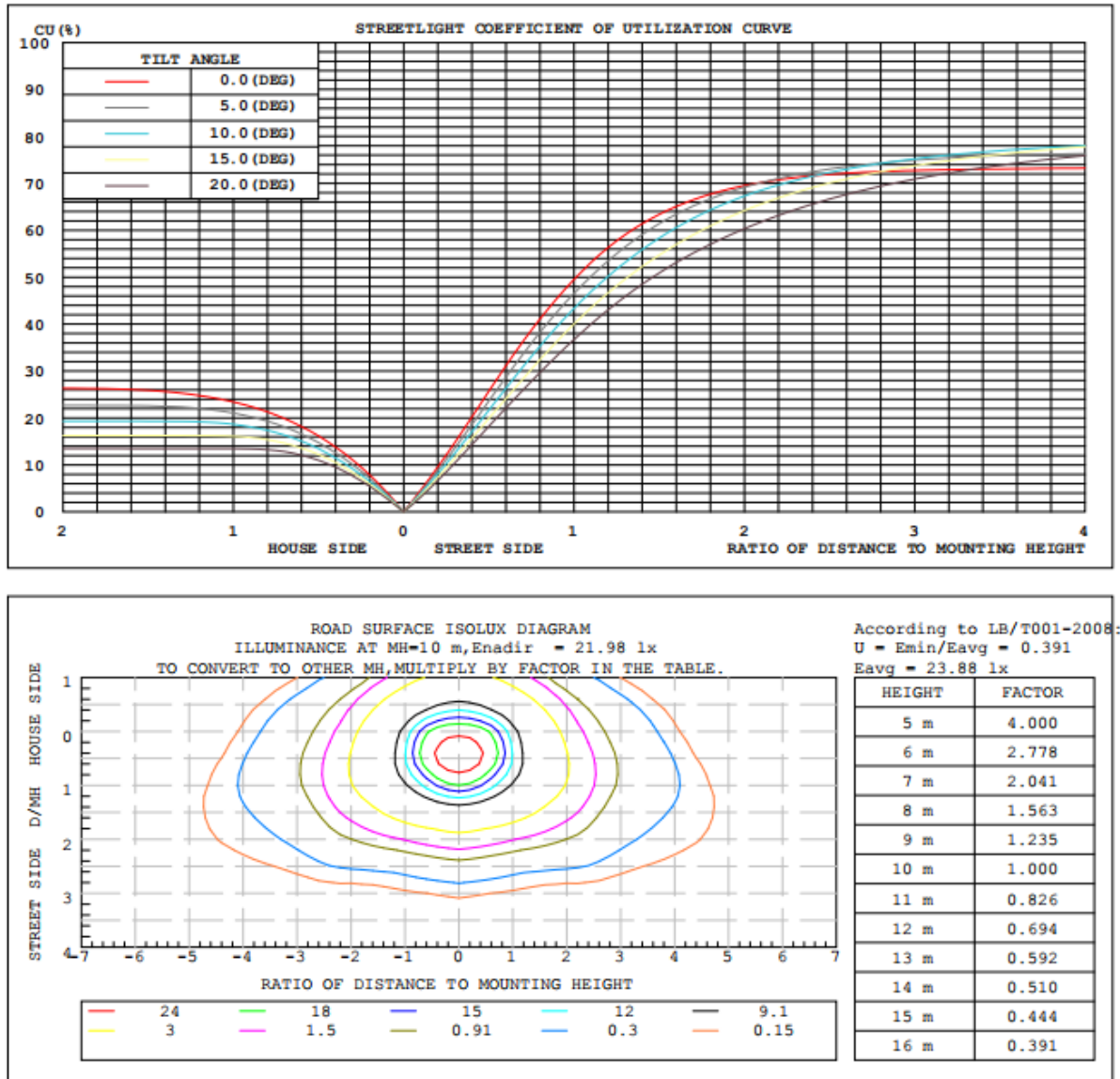
IES:Type III - Very Short  
CIE:Average - Short  
IES:Semi cut-off  
CIE:Non-cut-off  
Max.At80:129.0cd/klm  
Max.At90:0cd/klm  
Max.80-90:129.0cd/klm  
NRB 5101:Semi limited[23.7%]

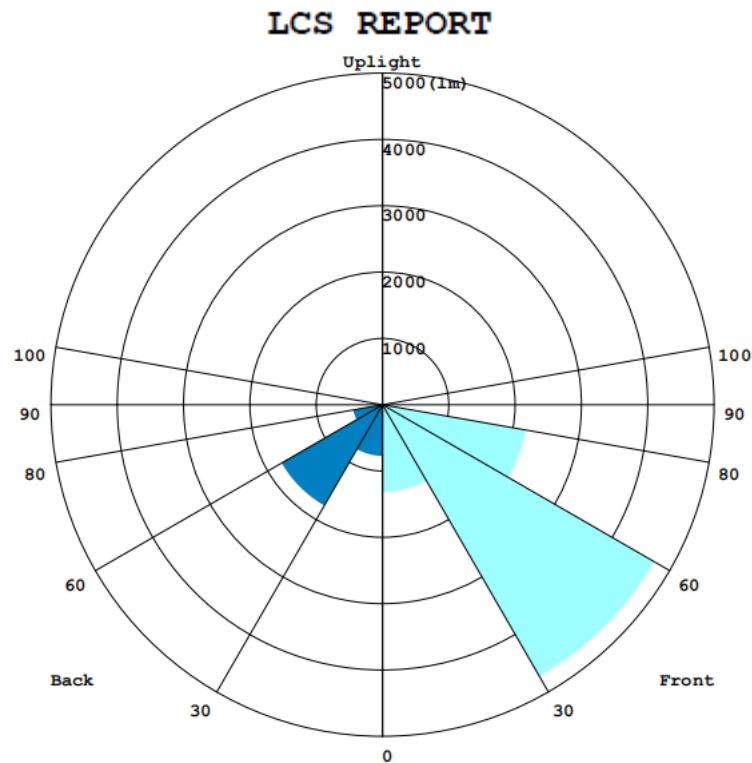
| ISOCANDELA DIAGRAM |      |
|--------------------|------|
| UNIT               | cd   |
| Imax=100%          | 5092 |
| 90%                | 4583 |
| 80%                | 4074 |
| 70%                | 3564 |
| 60%                | 3055 |
| 50%                | 2546 |
| 40%                | 2037 |
| 30%                | 1528 |
| 20%                | 1018 |
| 10%                | 509  |
| 5%                 | 255  |

## ISOCANDELA DIAGRAM



### COEFFICIENT OF UTILIZATION CURVE AND ISOLUX DIAGRAM




**IESNA Luminaire Flux Distribution Table:**

| Zone                          | Lumens | Luminaire % |
|-------------------------------|--------|-------------|
| FL - Front-Low (0-30)         | 1320.8 | 11.7        |
| FM - Front-Medium (30-60)     | 4731.9 | 41.9        |
| FH - Front-High (60-80)       | 2193.6 | 19.4        |
| FVH - Front-Very High (80-90) | 72.208 | 0.6         |
| Total Forward Light           | 8318.6 | 73.6        |

|                              |        |      |
|------------------------------|--------|------|
| BL - Back-Low (0-30)         | 773.84 | 6.8  |
| BM - Back-Medium (30-60)     | 1756.1 | 15.5 |
| BH - Back-High (60-80)       | 448.48 | 4.0  |
| BVH - Back-Very High (80-90) | 1.4875 | 0.0  |
| Total Back Light             | 2979.9 | 26.4 |

|                             |   |     |
|-----------------------------|---|-----|
| UL - Uplight-Low (90-100)   | 0 | 0.0 |
| UH - Uplight-High (100-180) | 0 | 0.0 |
| Total Up Light              | 0 | 0.0 |

|                              |          |
|------------------------------|----------|
| BUG (Back, Up, Glare) Rating | B2-U0-G2 |
|------------------------------|----------|

| Zone        | Downward Lumens | Upward Lumens | Total Lumens |
|-------------|-----------------|---------------|--------------|
| House Side  | 2979.9          | 0             | 2979.9       |
| Street Side | 8318.6          | 0             | 8318.6       |

**Photo**



**overview**



**Back-side**





LED Driver + SPD



Optical lens





**LED module**

United States Department of Commerce  
National Institute of Standards and Technology



## Certificate of Accreditation to ISO/IEC 17025:2017

NVLAP LAB CODE: 201063-0

**TUV Rheinland (Shanghai) Co., Ltd**  
Jing'An District, Shanghai  
China

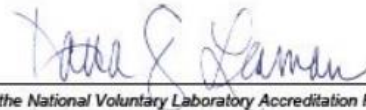
*is accredited by the National Voluntary Laboratory Accreditation Program for specific services,  
listed on the Scope of Accreditation, for:*

### Energy Efficient Lighting Products

*This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017.  
This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality  
management system (refer to joint ISO-ILAC-IAF Communique dated January 2009).*

2020-06-09 through 2021-06-30  
Effective Dates



  
For the National Voluntary Laboratory Accreditation Program