
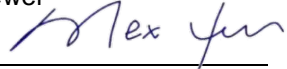


Prüfbericht <i>Test report</i>			Auftragsnr. / order no.: 244268555 Berichtsnr. / report no.: 60397071 001		
Auftraggeber <i>client:</i>			Auftragsdatum / <i>date of order:</i> 23.09.2020		
NISKO GROUP LTD. 41 HAMAAYAN MODI'IN, Israel.			AG-Referenz-Nr. / <i>client reference no.:</i> -		
Inhalt des Auftrags <i>content of order:</i>			Electrical and Photometric Measurement to LM-79-08		
Prüfgrundlagen <i>test specifications:</i>			IES LM-79-08		
Prüfgegenstand <i>test item:</i>			LED Street Light		
Bezeichnung <i>identification:</i>			EL-SL18LA-120W CLASS I T2S TFB 3000K		
Eingang Prüfgegenstand <i>receipt of test item:</i>			23.09.2020		
Prüfgegenstands-Nr. <i>test item no.:</i>			A002073542-017		
Prüfzeitraum und -ort <i>period of test and location:</i>			23.09.2020-28.08.2020, Shanghai Xingshang Photoelectric technology Co., Ltd		
Prüflaboratorium <i>testing laboratory:</i>			TÜV Rheinland (Shanghai) Co., Ltd.		
Prüfergebnis <i>test result *):</i>			N/A		
Sonstiges / other aspects:			<i>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..</i>		
geprüft / tested by:			kontrolliert / reviewed by:		
06.11.2020 Fernando Dai /PE			06.11.2020 Alex Yan /Reviewer		
					
Datum <i>Date</i>	Name/Stellung <i>Name/Position</i>	Unterschrift <i>Signature</i>	Datum <i>Date</i>	Name/Stellung <i>Name/Position</i>	Unterschrift <i>Signature</i>
<p>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. 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>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. 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:

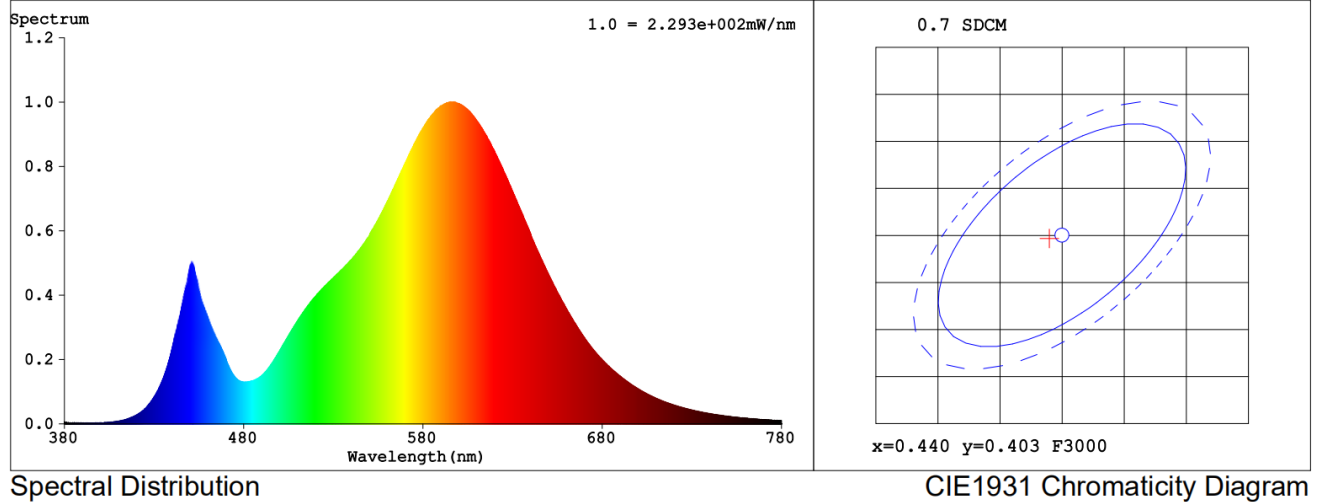
Factory: NINGBO SKYZON ENERGY CO., LTD
 Address: No.19, Ke San Road, Ninghai 315600, Ningbo China

Product Information					
Model name	Sample number	Rated voltage, frequency (V, Hz)	Nominal CCT (K)	Rated Wattage (W)	Type of LED Chip
EL-SL18LA-120W CLASS I T2S TFB 3000K	A002073542-017	200-240Vac, 50/60Hz	3000K	120W	LUMILEDS LUXEON 5050- L15030705006000 00 14S2P 2MODULE

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

Measured Results	
	EL-SL18LA-120W CLASS I T2S TFB 3000K
Total luminous flux (lm)	17507
Input wattage (W)	120.762
Input current (A)	0.5558
Frequency (Hz)	50
Power factor	0.9861
Efficacy (Lm/W)	144.97
CCT (K)	2966
Chromaticity x	0.4383
Chromaticity y	0.4019
Chromaticity u'	0.2513
Chromaticity v'	0.5201
CRI	74
R9	0
Du'v' (Max.)	-0.000793
THDI(%)	5.184
LCS BUG Rating	B2-U0-G2, Full cut-off

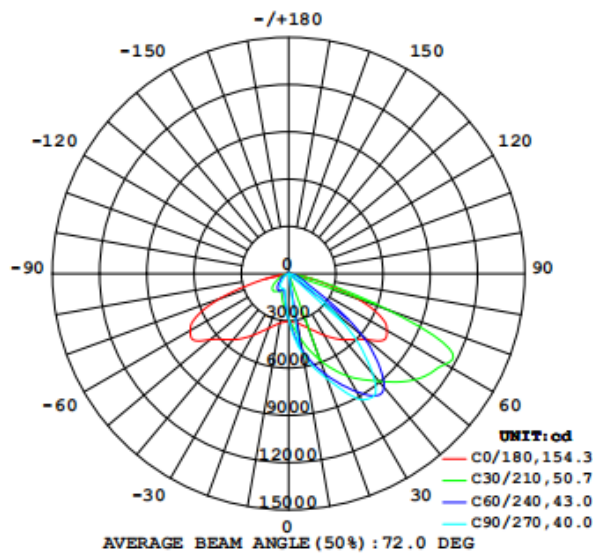
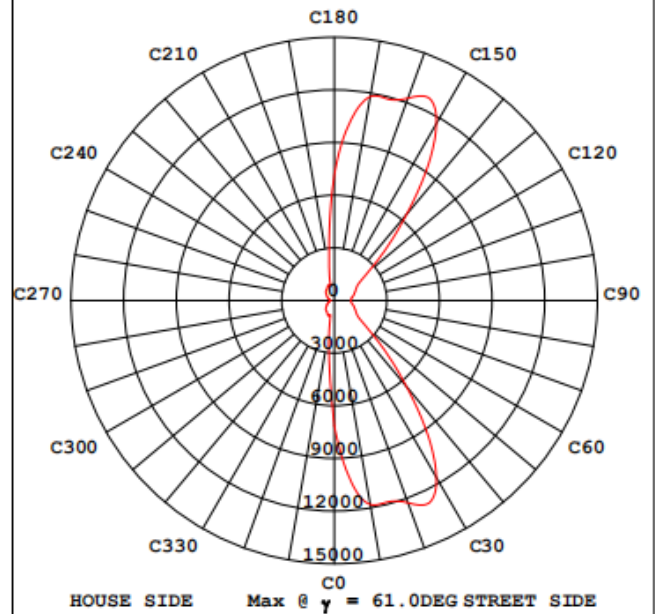
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Spectral power distribution: (Clause 10 of LM-79)
EL-SL18LA-120W CLASS I T2S TFB 3000K

Dominant WL: 583.1nm
Peak WL: 597nm
Luminous Intensity Distribution, Ambient temperature: 25°C (Clause 10 of LM-79)

Description	Data
Model	EL-SL18LA 120W CLASS I T2S TFB 3000K
Test voltage (V)	220VAC
Test current (A)	0.5558
Test wattage (W)	120.762
Frequency (Hz)	50
Power factor	0.9861
Central luminous intensity (cd)	2914
Max. luminous intensity(cd)	12743.61 (C=65, Gamma=61)

For the distribution curve see next page.
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DATA OF LAMP		PHOTOMETRIC DATA				Eff: 144.97 lm/W
MODEL	EL-SL18LA	I _{max} (cd)	12743.61	η street_up (%)	0.0	
NOMINAL POWER(W)	120	LOR(%)	100.0	η street_down (%)	84.3	
RATED VOLTAGE (V)	220-240	TOTAL FLUX(lm)	17507	η house_up (%)	0.0	
NOMINAL FLUX(lm)	17506.7	MAXIMUM @ (C, γ)	65, 61.0	η house_down (%)	15.7	
LAMPS INSIDE	1	η up (%)	0.0	76 FLASHAREA(m2)	0.05000	
TEST VOLTAGE (V)	220	η down (%)	100.0	SLI	23.314	

**INTENSITY DISTRIBUTION DIAGRAM
IN C PLANS**

**MAX INTENSITY CONE SURFACE
DISTRIBUTION DIAGRAM**


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

Zone	Lumens	%Lamp	%Fixt
0-20	1259.6	7.20	7.20
0-30	3219.36	18.40	18.40
0-40	6326.23	36.10	36.10
0-60	13494.46	77.10	77.10
0-80	17398.5	99.40	99.40
0-90	17506.72	100.00	100.00
10-90	17221.87	98.40	98.40
20-40	5066.64	28.90	28.90
20-50	8717.44	49.80	49.80
40-70	9983.62	57.00	57.00
60-80	3904.03	22.30	22.30
70-80	1088.66	6.20	6.20
80-90	108.22	0.60	0.60
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	17506.72	100.00	100.00

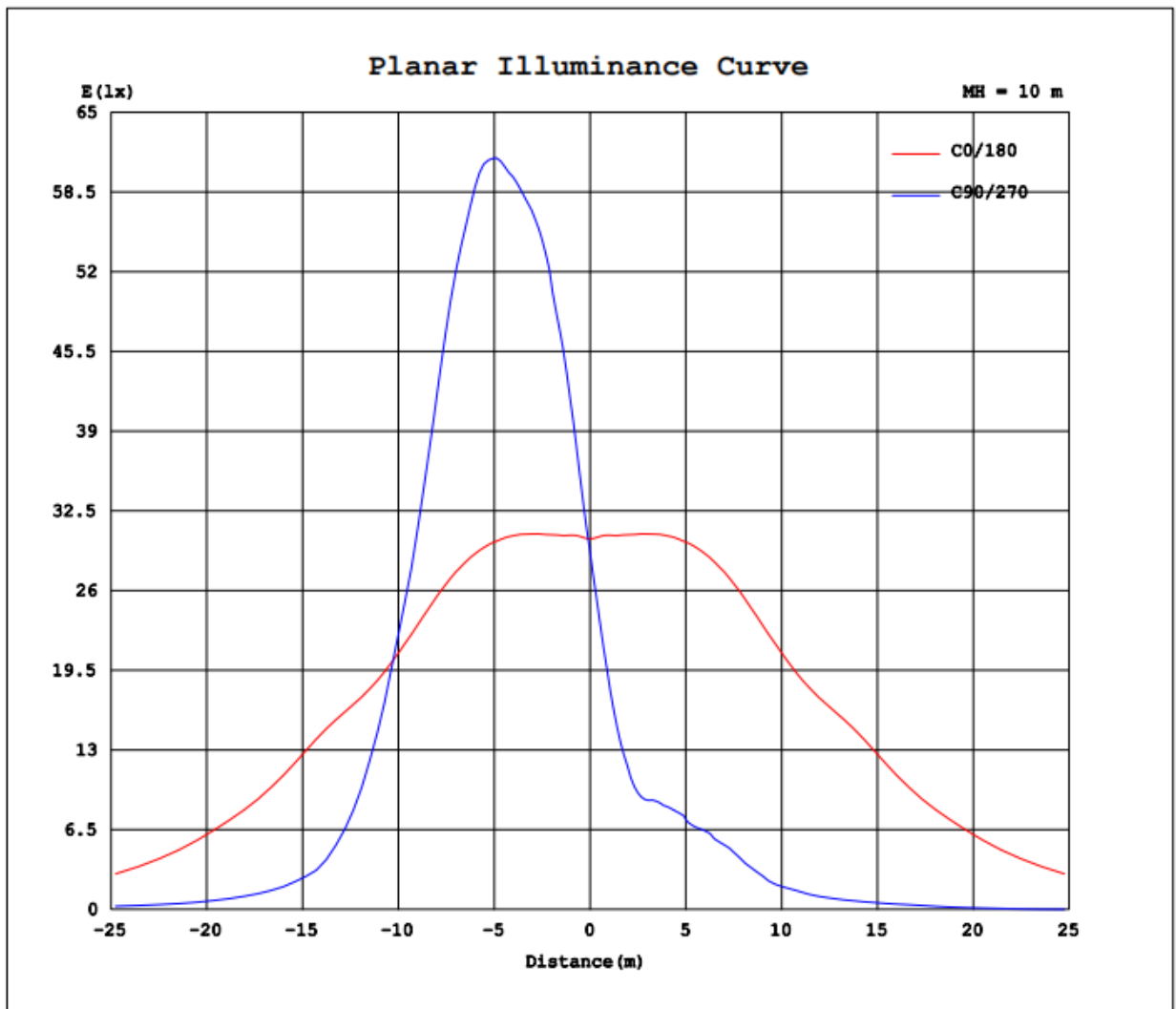
Total Luminaire Efficiency = 100.00%

Prüfbericht Nr. / Test report no. 60397071 001

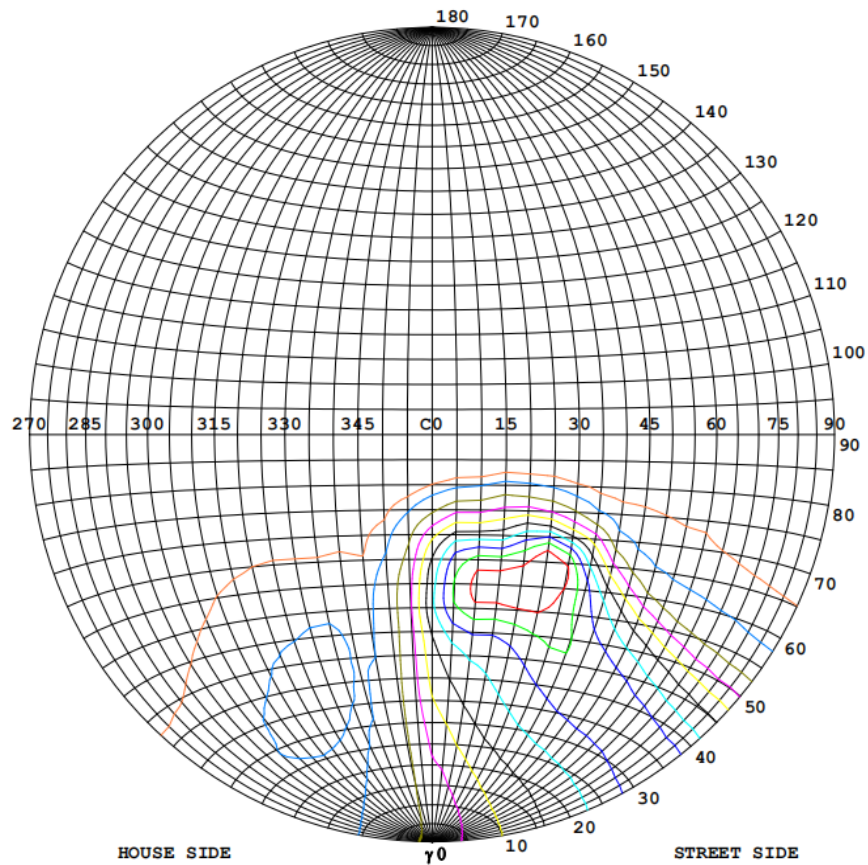
Luminous Intensity Distribution Data

Tool_View EL-S18LA 120W CLASS I T2S TFB 300KUES																							
Keywords					Candela					20					30								
Vertical Angles		Horizontal Angles		Multiplier=1	Max Cd																		
Angles		5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100	105	
36	9395 81	9405 32	9393 98	9456 06	9540 26	9595 65	9656 26	9650 92	9409 16	9226 87	9126 77	8694 82	8342 74	7929 32	7537 32	7117 85	6717 81	5911 97	5104 22	3423 96	2300 45	1491 16	
37	9229 70	9262 14	9245 49	9368 41	9472 67	9583 28	9623 29	9616 07	9556 42	9382 11	9036 87	8646 62	8479 87	8047 68	7641 57	7223 69	6642 01	6038 20	5200 95	3445 09	2212 83	1462 05	
38	8993 38	9033 99	9030 35	9191 83	9359 94	9514 39	9617 48	9614 29	9671 72	9532 31	9348 79	9003 87	8618 15	8171 19	7745 83	7328 15	6866 80	6164 49	5297 62	3463 74	2259 76	1431 40	
39	8669 55	8767 88	8776 50	8965 17	9138 19	9300 66	9505 79	9616 36	9743 62	9664 71	9498 29	9161 33	8763 56	8293 89	7845 03	7427 39	6992 56	6288 00	5389 01	3477 72	2246 05	1404 51	
40	8324 78	8424 04	8465 72	8680 85	8897 67	9201 77	9427 16	9681 11	9790 72	9770 42	9642 27	9313 22	8913 53	8418 49	7946 67	7523 98	7117 05	6413 47	5473 04	3484 88	2220 98	1377 80	
41	7946 35	8052 09	8096 59	8349 85	8594 28	8954 28	9244 07	9589 45	9781 47	9842 56	9678 97	9407 10	8952 16	8048 50	7621 86	7242 71	6543 61	5562 24	3493 21	2196 16	1352 89	1052 99	
42	7528 58	7641 78	7692 02	7956 46	8182 04	8646 89	8992 36	9441 39	9720 22	9872 56	9871 68	9633 86	9241 04	8684 84	8152 97	7717 35	7371 28	6675 54	5646 11	3496 38	2178 16	1330 22	
43	7101 27	7224 58	7281 66	7541 44	7821 04	8290 92	8701 67	9240 19	9615 40	9688 55	9849 09	9794 31	9399 79	8820 61	8263 97	7813 94	7393 49	6814 25	5730 78	3500 01	2151 43	1307 54	
44	6744 56	6847 24	6903 83	7152 35	7439 98	7925 84	8387 90	8993 97	9452 21	9804 03	9992 03	9926 76	9559 47	8965 00	8383 05	7915 43	7644 11	6959 92	5824 89	3504 91	2134 31	1286 95	
45	6336 74	6343 33	6523 54	6772 65	7039 98	7510 76	7956 73	8060 76	8705 59	9236 93	9700 57	9955 95	10040 73	9726 02	9114 41	8513 31	8026 41	7602 19	7117 43	5912 89	3503 44	2107 50	1270 55
46	5968 65	6003 54	6071 15	6371 88	6648 76	7132 96	7692 36	8307 66	8983 06	9595 34	9961 63	10126 34	9883 98	9479 02	8661 54	8160 39	7988 48	7297 87	6010 02	3507 42	2084 89	1255 04	
47	5321 48	5485 74	5528 15	5986 79	6243 77	6800 47	7321 03	8042 49	8685 33	9363 03	9882 18	10187 02	10044 61	9259 47	8626 79	8320 76	8030 48	7493 34	6109 66	3512 94	2063 83	1242 96	
48	4802 30	4914 42	5030 34	5384 82	5780 56	6380 94	6978 47	7706 35	8383 81	9134 63	9767 91	10220 61	10195 90	9653 18	9024 22	8516 47	8457 27	7734 22	6385 28	3527 73	2029 63	1228 81	
49	4260 04	4394 39	4512 31	4854 82	5253 66	5916 43	6581 70	7358 64	8063 73	8880 62	9624 10	10234 97	10339 38	9863 19	9247 39	8755 98	8756 79	8008 63	6365 60	3542 65	1995 43	1207 68	
50	3744 45	3896 34	3954 35	4321 74	4718 35	5404 47	6108 13	6884 26	7745 89	8603 36	9441 44	10220 87	10473 12	10100 13	9517 60	9052 73	8511 94	8151 89	6525 43	3570 16	1960 64	1184 32	
51	3251 16	3408 29	3427 47	3827 83	4158 40	4856 73	5587 77	6584 96	7393 26	8318 53	9250 11	10180 38	10599 99	10354 42	9825 13	9404 22	9497 91	8651 11	6710 18	3596 28	1927 84	1166 42	
52	2806 79	2921 09	3000 29	3334 16	3644 72	4312 70	5053 08	5885 94	7031 05	8031 48	9050 15	10121 69	10718 63	10631 24	10180 54	9802 10	9311 64	9002 67	6903 58	3625 43	1910 28	1146 94	
53	2401 08	2498 79	2596 10	2860 86	3159 14	3786 62	4521 50	5100 92	6637 69	7746 77	8857 23	10041 20	10825 47	10928 75	10561 02	10225 98	10031 02	9343 22	7095 64	3658 23	1899 60	1130 17	
54	2002 99	2110 64	2189 10	2464 93	2725 39	3261 93	3953 20	5036 09	6195 21	7459 42	8666 33	9956 46	10922 76	11232 02	10956 19	10641 78	10073 73	9664 25	7258 95	3671 05	1897 62	1112 18	
55	1695 24	1779 40	1839 01	2109 74	2329 90	2793 80	3411 22	4482 27	5684 22	7144 16	8471 98	9671 12	11011 62	11537 93	11349 05	11036 35	10782 68	9934 67	7866 91	3679 70	1895 45	1091 47	
56	1545 71	1561 05	1634 49	1786 73	1954 05	2384 74	2905 20	3925 21	5119 11	6776 37	8025 79	9788 14	11085 18	11288 84	1171 25	11382 31	11443 80	11043 06	7412 50	3658 58	1892 31	1068 69	
57	1396 24	1409 48	1493 89	1589 69	1732 29	2130 20	2495 96	3375 97	4576 97	6339 36	8275 15	9713 62	11154 82	12029 03	12026 98	11674 69	1146 16	11426 16	7399 41	3624 28	1879 97	1038 42	
58	1246 77	1263 41	1354 31	1457 96	1565 36	1731 91	2111 46	2885 64	4009 99	5840 42	7775 36	9610 79	11240 97	12332 02	12258 61	11878 60	11801 45	10332 84	7955 77	3581 91	1861 93	1005 94	
59	1133 17	1189 34	1234 76	1347 67	1454 46	1775 64	2435 74	3475 84	5264 85	7455 17	9578 77	11357 05	12532 44	12378 12	11981 01	11879 46	10325 58	7282 37	3538 19	1820 06	970 10		
60	1029 88	1069 46	1121 80	1244 64	1326 69	1439 02	1572 91	2031 87	2966 51	4694 18	6958 53	9456 02	11493 13	12674 02	12376 71	11979 72	11871 73	10273 84	7201 96	3498 38	1756 77	923 96	
61	943 59	975 06	1026 27	1138 43	1222 61	1338 32	1455 17	1718 40	2506 47	4165 60	6410 24	9255 23	11632 07	12743 61	12626 06	11878 32	11678 04	10184 29	7133 36	3428 64	1694 45	883 91	
62	860 43	879 93	937 43	1035 82	1131 60	1242 32	1352 99	1506 63	2086 47	3684 44	5832 32	8938 63	11733 67	12741 04	12045 53	11689 73	11658 00	10075 35	7045 74	3341 84	1628 95	843 62	
63	776 83	799 65	849 72	946 34	1037 60	1149 81	1250 39	1376 48	1737 28	3185 75	5267 80	8488 69	11736 02	12689 89	11774 76	11428 59	11433 34	9934 80	6910 13	3205 47	1552 50	792 23	
64	701 22	733 22	772 24	861 94	947 73	1067 68	1167 32	1276 83	1506 74	2683 63	4233 94	7981 59	11595 40	12616 08	11473 43	11099 95	11116 05	9735 71	6706 30	2942 63	1464 58	732 76	
65	642 30	670 72	705 49	781 35	865 68	944 44	1085 63	1195 06	1385 03	2249 88	4721 47	7408 12	11254 48	12439 51	11391 38	10649 44	10673 55	9460 33	6448 19	2362 06	1365 49	680 18	
66	593 39	618 63	658 11	711 34	790 95	889 14	1007 52	1116 51	1264 60	1889 38	3696 20	6824 81	10702 30	11254 16	10744 81	10018 69	10087 97	9088 44	6172 25	2815 43	1300 95	628 52	
67	550 08	572 22	611 15	653 44	725 68	829 18	899 36	1040 64	1151 80	1584 32	3183 26	6256 91	9933 77	11670 13	10259 10	9220 95	9378 29	8646 69	5869 39	2699 32	1206 75	578 86	
68	513 57	542 77	589 33	654 38	769 92	920 99	1069 81	1168 11	1383 47	2653 94	5707 94	9833 10	10960 90	9694 45	8472 48	8696 40	9130 30	6572 44	2654 63	1112 84	560 58		

Tool_View EL-SL18LA 120W CLASS I T2S FTH 3000KIES																																		
Keywords				Candela												2D						3D												
Vertical Angles				Horizontal Angles				Multipliers=1				Max Cd																						
40	255	260	265	270	275	280	285	290	295	300	305	310	315	320	325	330	335	340	345	350	355	360												
1	1377.80	2220.98	3484.08	5473.04	6413.47	7117.05	7523.98	7846.67	8418.43	8913.53	9317.32	9642.27	9770.42	9790.72	9681.11	9427.16	9201.77	8897.67	8680.85	8465.72	8424.04	8324.78												
2	1352.89	2196.16	3493.21	5462.24	6353.63	7242.71	7621.86	7948.60	8552.16	9077.10	9433.26	9767.08	9842.56	9781.47	9591.45	9244.07	8954.28	8553.06	8349.85	8096.59	8052.79	7946.33												
42	1330.22	2178.14	3496.38	5466.11	6675.54	7371.28	7717.35	8152.97	8684.84	9241.04	9633.86	9871.68	9872.56	9720.22	9441.39	8992.36	8646.89	8182.04	7956.96	7682.02	7641.78	7528.58												
43	1307.54	2151.43	3500.01	5730.78	6814.25	7499.83	7813.94	8263.97	8821.60	9399.79	9794.31	9947.09	9858.55	9615.40	9240.21	8791.67	8246.92	7821.87	7541.44	7281.66	7224.54	7101.27												
44	1286.95	2134.31	3503.91	5824.89	6959.92	7644.11	7915.43	8383.05	8965.00	9559.47	9926.76	9992.03	9804.03	9452.21	8993.97	8367.90	7925.84	7438.98	7152.35	6903.83	6847.24	6744.56												
45	1270.55	2107.50	3504.44	5921.71	7114.73	7802.19	8026.41	8513.91	9114.41	9726.02	10187.03	9995.56	9700.57	9236.93	8705.50	8060.76	7535.73	7051.70	6772.65	6529.54	6433.13	6336.74												
46	1255.04	2084.89	3507.47	6101.02	7297.97	7988.80	8160.39	8661.59	9279.02	9883.98	10126.34	9961.63	9595.34	8983.06	8387.66	7692.36	7192.96	6648.76	6371.88	6078.15	6003.54	5868.65												
47	1242.98	2063.83	3512.94	6109.66	7439.34	820																												



STREETLIGHT ISOCANDELA DIAGRAM

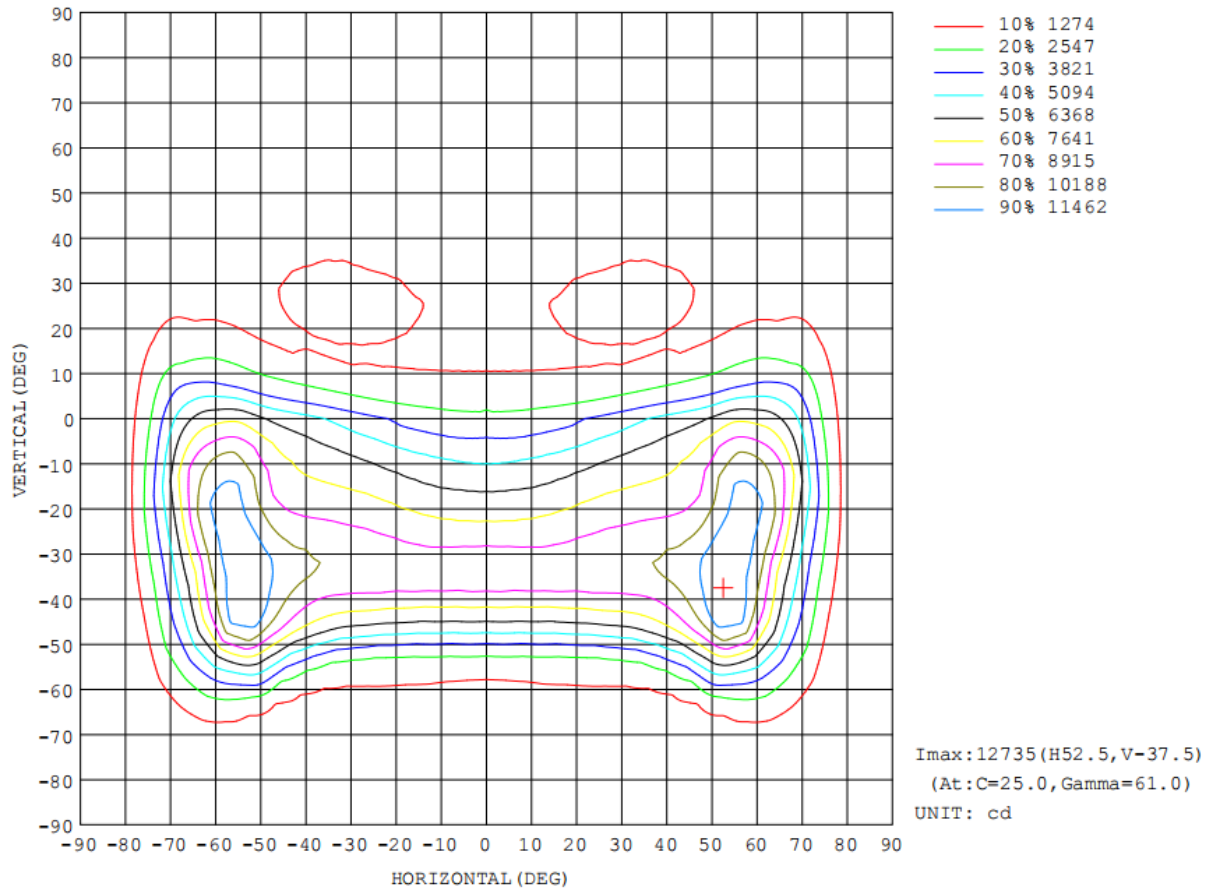


Classification:

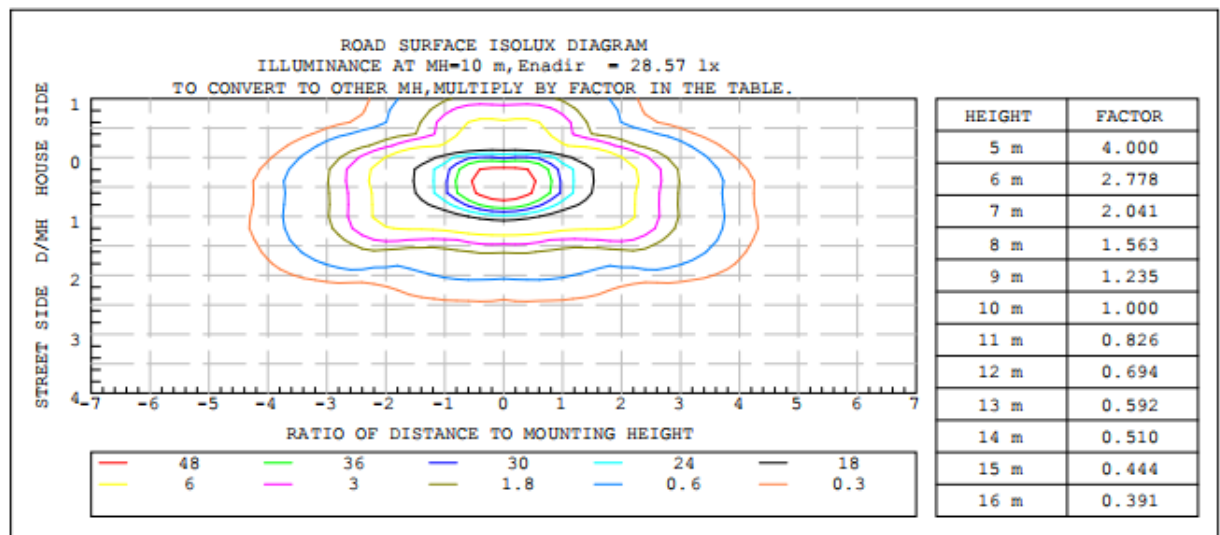
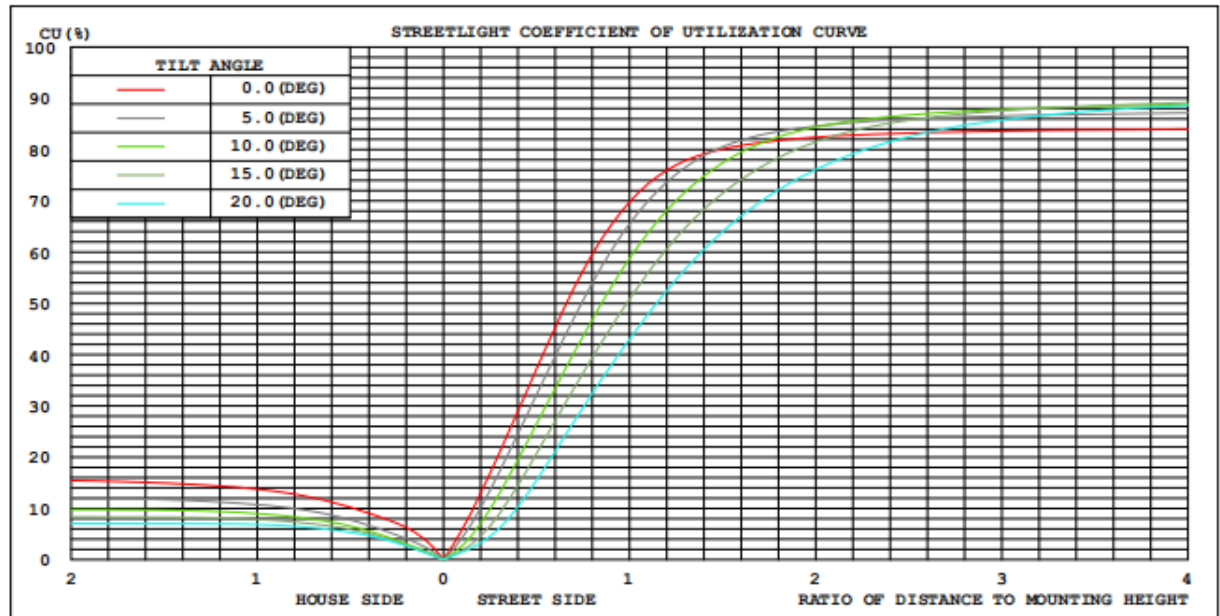
IES: Type II - Short
 CIE: Average - Intermediate
 IES: Full cut-off
 CIE: Semi-cut-off
 Max. At 80: 92.10 cd/klm
 Max. At 90: 0 cd/klm
 Max. 80-90: 92.10 cd/klm

ISOCANDELA DIAGRAM	
UNIT	cd
I _{max} =100%	12744
90%	11469
80%	10195
70%	8921
60%	7646
50%	6372
40%	5097
30%	3823
20%	2549
10%	1274
5%	637

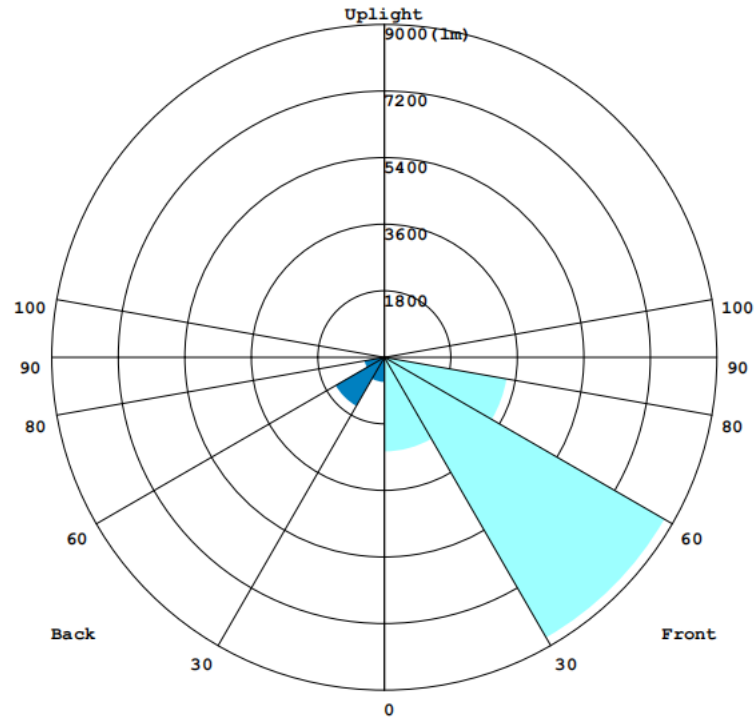
ISOCANDELA DIAGRAM



COEFFICIENT OF UTILIZATION CURVE AND ISOLUX DIAGRAM



LCS REPORT



IESNA Luminaire Flux Distribution Table:

Zone	Lumens	Luminaire %
FL - Front-Low(0-30)	2549.6	14.6
FM - Front-Medium(30-60)	8755.6	50.0
FH - Front-High(60-80)	3361.8	19.2
FVH - Front-Very High(80-90)	96.368	0.6
Total Forward Light	14763	84.3

BL - Back-Low(0-30)	669.72	3.8
BM - Back-Medium(30-60)	1519.5	8.7
BH - Back-High(60-80)	542.21	3.1
BVH - Back-Very High(80-90)	11.85	0.1
Total Back Light	2743.3	15.7

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	2743.3	0	2743.3
Street Side	14763	0	14763

Photo



overview



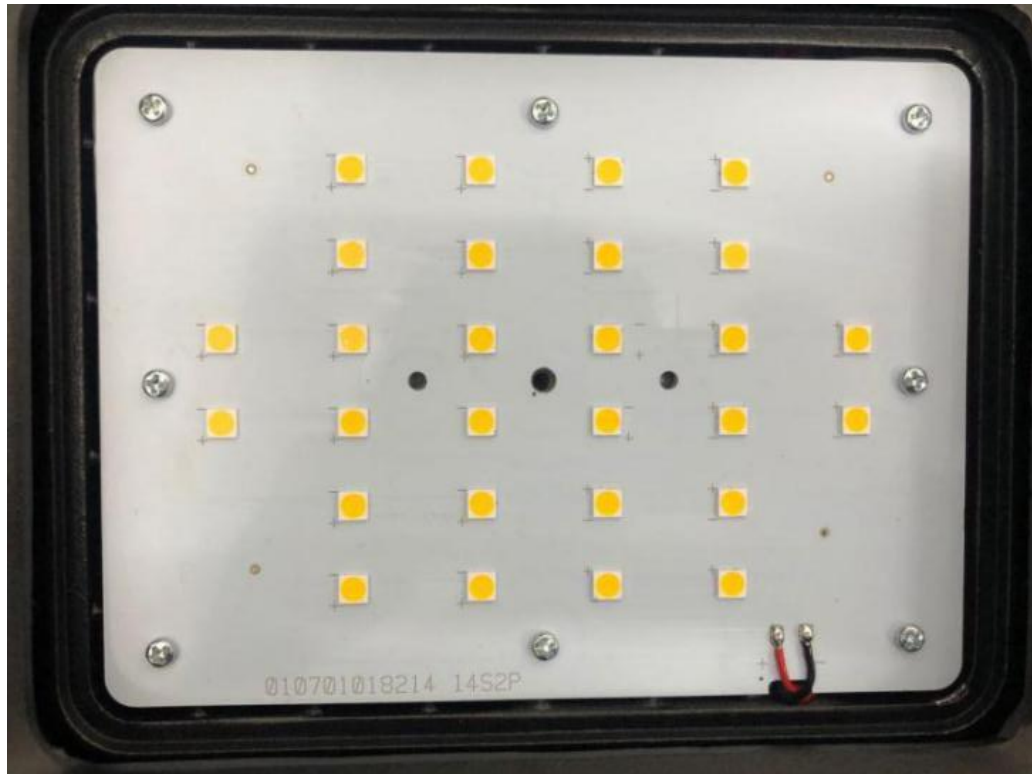
Back-side



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

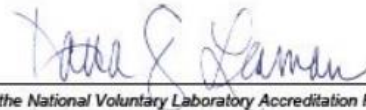
*is accredited by the National Voluntary Laboratory Accreditation Program for specific services,
listed on the Scope of Accreditation, for:*

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