

Prüfbericht Test report		Auftragsnr. / order no.: 244268555 Berichtsnr. / report no.: 60397031 001	
Auftraggeber client:		Auftragsdatum / date of order: 23.09.2020	
NISKO GROUP LTD. 41 HAMAAYAN MODI'IN, Israel.		AG-Referenz-Nr. / client reference no.: -	
Inhalt des Auftrags content of order:		Electrical and Photometric Measurement to LM-79-08	
Prüfgrundlagen test specifications:		IES LM-79-08	
Prüfgegenstand test item:		LED Street Light	
Bezeichnung identification:		EL-SL 18MA-50W CLASS I T3VS 3000K	
Eingang Prüfgegenstand receipt of test item:		23.09.2020	
Prüfgegenstands-Nr. test item no.:		A002073542-005	
Prüfzeitraum und -ort period of test and location:		23.09.2020-28.08.2020, Shanghai Xingshang Photoelectric technologyCo.,Ltd	
Prüflaboratorium testing laboratory:		TÜV Rheinland (Shanghai) Co., Ltd.	
Prüfergebnis test result *):		N/A	
Sonstiges / other aspects:		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..	
geprüft / tested by:		kontrolliert / reviewed by:	
06.11.2020 Fernando Dai / P		06.11.2020 Alex Yan / Reviewer	
Datum Date	Name/Stellung Name/Position	Unterschrift Signature	Datum Date
<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-SL18MA-50W CLASS I T3VS 3000K	A002073542-005	200-240Vac, 50/60Hz	3000K	50W	LUMILEDS LUXEON 5050- L15030705006000 00 12S2P

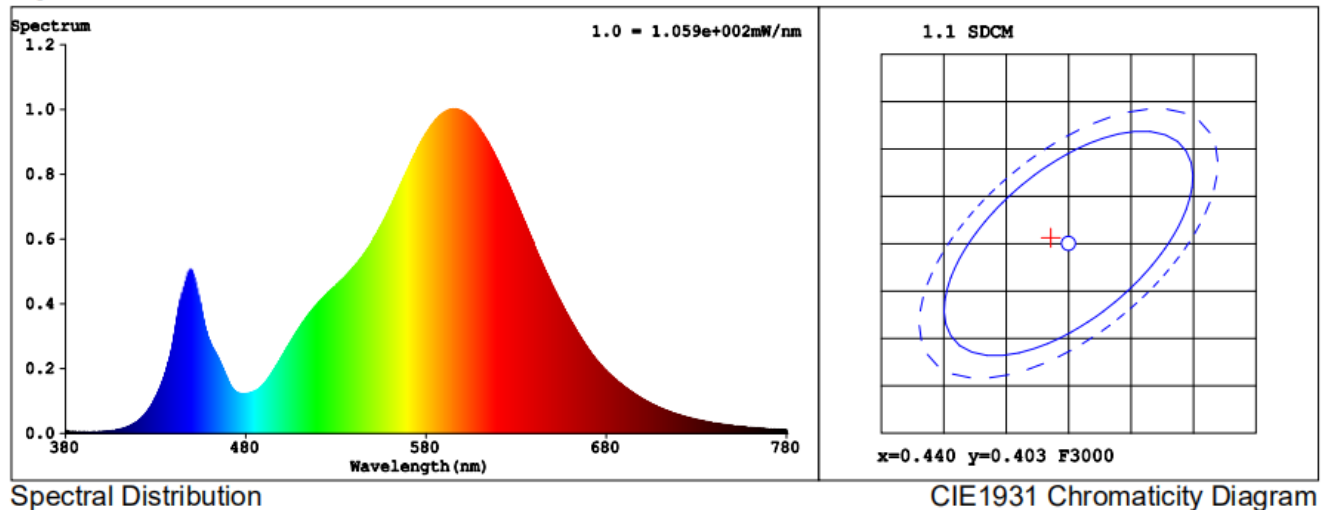
Prüfbericht Nr. / Test report no. 60397031 001

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

Prüfbericht Nr. / Test report no. 60397031 001

Measured Results	
	EL-SL18MA-50W CLASS I T3VS 3000K
Total luminous flux (lm)	7177
Input wattage (W)	50.07
Input current (A)	0.2344
Frequency (Hz)	50
Power factor	0.9711
Efficacy (lm/W)	143.33
CCT (K)	2969
Chromaticity x	0.4386
Chromaticity y	0.4036
Chromaticity u'	0.2518
Chromaticity v'	0.5214
CRI	73.4
R9	0
Du'v' (Max.)	-0.000408
THDI(%)	5.769
LCS BUG Rating	B2-U0-G2, Non cut-off

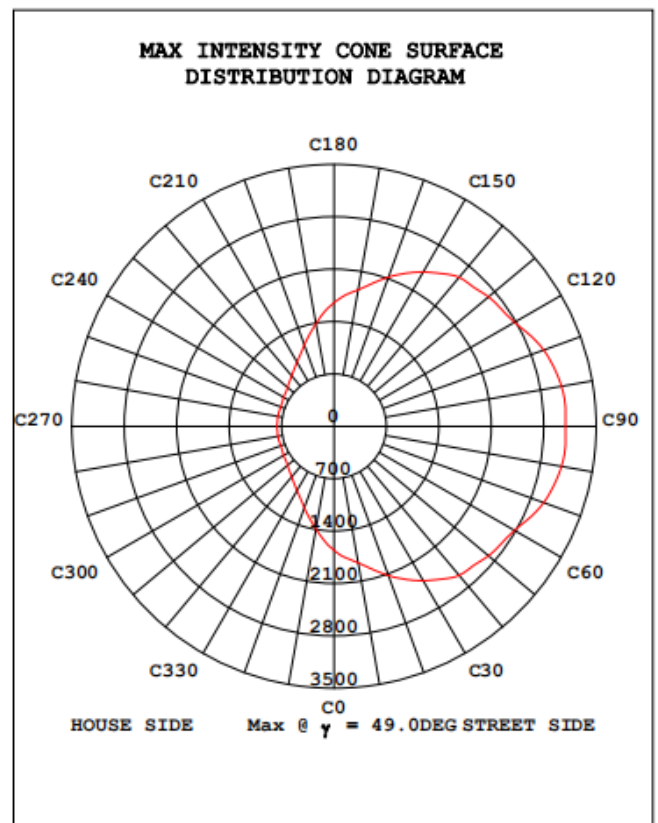
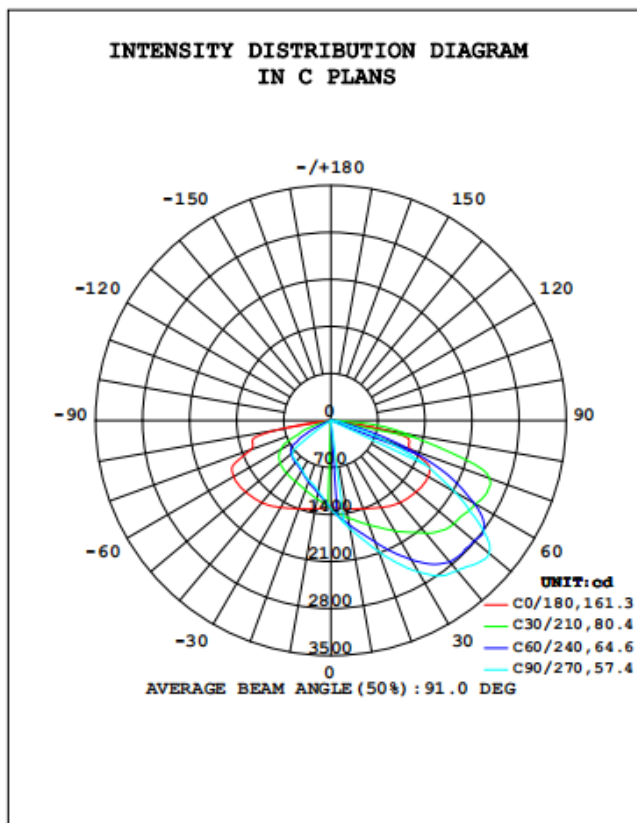
-The following in this page is blank-

Spectral power distribution: (Clause 10 of LM-79)
EL-SL18MA-50W CLASS I T3VS 3000K

Dominant WL: 583.1nm
Peak WL: 596nm
Luminous Intensity Distribution, Ambient temperature: 25°C (Clause 10 of LM-79)

Description	Data
Model	EL-SL18MA-50W CLASS I T3VS 3000K
Test voltage (V)	220VAC
Test current (A)	0.2344
Test wattage (W)	50.07
Frequency (Hz)	50
Power factor	0.9711
Central luminous intensity (cd)	1307
Max. luminous intensity(cd)	3099.2 (C=5, Gamma=49)

For the distribution curve see next page.
-The following in this page is blank-

DATA OF LAMP		PHOTOMETRIC DATA				Eff: 143.33 lm/W
MODEL	EL-SL18MA	I _{max} (cd)	3099.2	η street_up (%)	0.0	
NOMINAL POWER (W)	50	LOR (%)	100.0	η street_down (%)	73.3	
RATED VOLTAGE (V)	220	TOTAL FLUX (lm)	7177	η house_up (%)	0.0	
NOMINAL FLUX (lm)	7176.62	MAXIMUM @ (C, γ)	5,49.0	η house_down (%)	26.7	
LAMPS INSIDE	1	η up (%)	0.0	76 FLASHAREA (m2)	0.05000	
TEST VOLTAGE (V)	220	η down (%)	100.0	SLI	23.615	



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

Zone	Lumens	%Lamp	%Fixt
0-20	517.88	7.20	7.20
0-30	1213.89	16.90	16.90
0-40	2247.38	31.30	31.30
0-60	5080.6	70.80	70.80
0-80	7016.87	97.80	97.80
0-90	7176.62	100.00	100.00
10-90	7050.47	98.20	98.20
20-40	1729.5	24.10	24.10
20-50	3074.69	42.80	42.80
40-70	4085.83	56.90	56.90
60-80	1936.3	27.00	27.00
70-80	683.68	9.50	9.50
80-90	159.73	2.20	2.20
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	7176.62	100.00	100.00

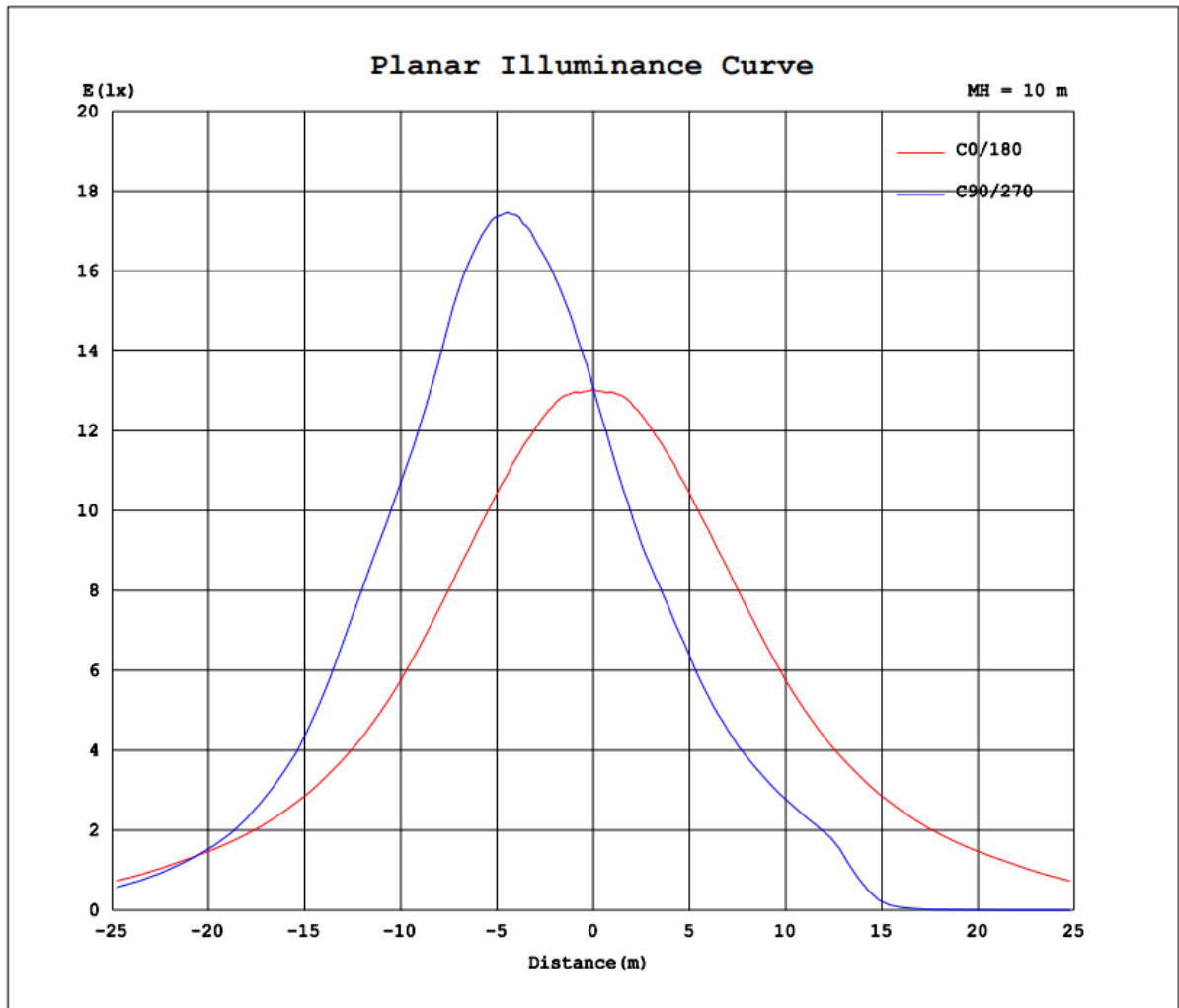
Total Luminaire Efficiency = 100.00%

Prüfbericht Nr. / Test report no. 60397031 001

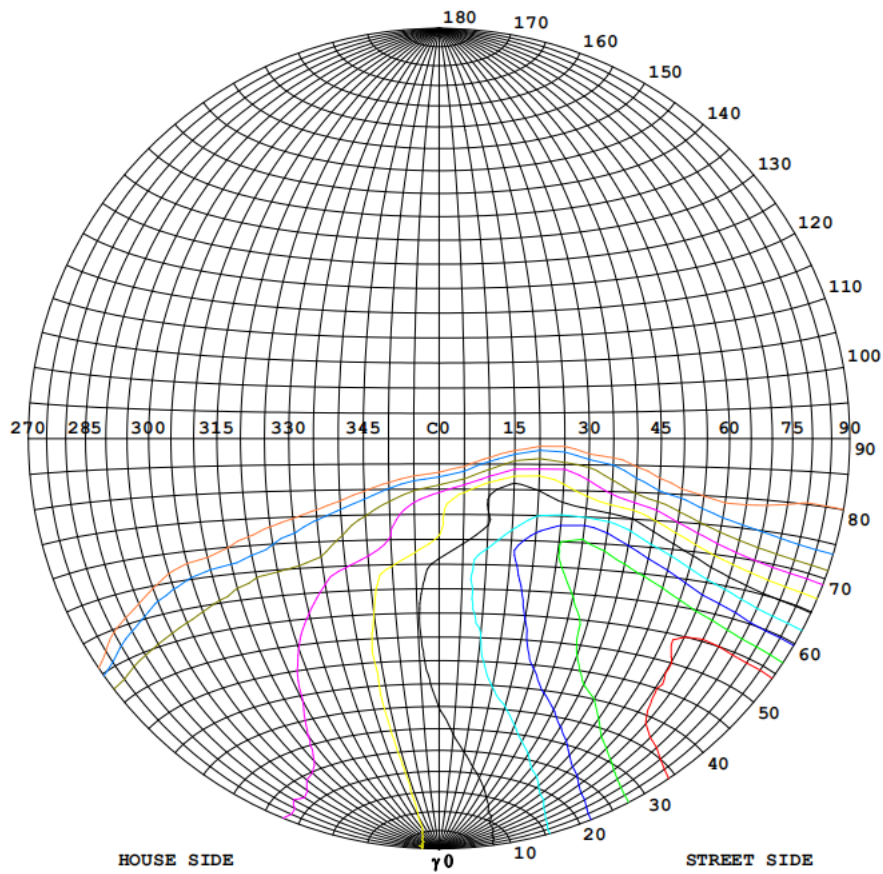
Luminous Intensity Distribution Data

Total View EL-S18MA 50W CLASS I T3VS 3000KIES																							
Keywords												Candela				2D				3D			
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	
31	2649.10	2654.00	2626.30	2604.50	2562.40	2505.20	2441.20	2372.70	2275.70	2179.50	2096.40	1995.30	1926.80	1838.50	1770.90	1702.90	1637.00	1574.70	1508.50	1436.50	1347.10	1265.20	
32	2695.70	2691.90	2666.90	2641.40	2598.10	2547.30	2482.90	2415.40	2319.90	2221.50	2130.40	2023.80	1954.00	1862.20	1787.90	1725.30	1647.00	1586.20	1515.90	1445.30	1352.80	1267.00	
33	2742.30	2733.20	2707.50	2682.30	2644.70	2589.50	2528.80	2455.60	2351.80	2250.40	2159.50	2054.10	1979.70	1884.30	1804.60	1741.40	1663.90	1603.00	1527.30	1454.70	1358.40	1272.40	
34	2789.00	2774.70	2748.10	2717.60	2684.80	2638.00	2572.60	2494.30	2382.50	2287.00	2206.80	2086.70	2004.90	1905.00	1824.10	1760.30	1680.70	1618.00	1541.80	1461.70	1361.50	1273.40	
35	2821.90	2816.10	2788.60	2758.00	2720.90	2672.80	2610.60	2530.70	2426.30	2329.30	2242.30	2124.80	2033.10	1936.40	1845.30	1774.60	1698.60	1631.50	1552.70	1463.40	1364.30	1274.00	
36	2855.00	2845.60	2821.20	2792.80	2756.90	2706.10	2645.50	2565.10	2459.30	2366.80	2270.80	2156.40	2069.20	1956.30	1864.40	1791.20	1717.00	1647.20	1560.30	1467.80	1365.70	1275.00	
37	2885.00	2865.50	2845.80	2816.20	2782.90	2732.90	2673.80	2598.50	2493.50	2398.20	2307.20	2192.10	2085.80	1980.40	1882.00	1815.40	1732.20	1659.90	1571.30	1472.70	1370.60	1277.00	
38	2910.20	2879.90	2873.10	2839.00	2819.10	2772.70	2698.70	2631.20	2522.70	2431.00	2338.70	2227.90	2116.90	2013.80	1916.00	1834.80	1747.90	1674.60	1579.90	1480.70	1378.80	1277.40	
39	2901.60	2902.70	2890.30	2866.10	2838.40	2797.50	2723.50	2661.70	2554.70	2449.30	2380.40	2263.40	2151.10	2043.30	1939.40	1847.20	1758.20	1687.70	1590.30	1490.40	1376.40	1276.20	
40	2919.60	2915.10	2908.70	2889.10	2858.30	2811.80	2748.30	2686.60	2582.50	2476.50	2412.70	2288.90	2172.10	2067.10	1955.60	1865.20	1769.20	1697.90	1597.90	1496.10	1378.50	1274.60	
41	2932.10	2941.50	2913.60	2894.30	2864.30	2825.40	2822.80	2860.10	2760.10	2701.60	2602.40	2506.70	2443.00	2331.00	2221.90	2086.60	1974.20	1882.50	1782.40	1705.80	1604.90	1497.90	
42	2955.00	2963.80	2939.80	2916.20	2894.20	2858.80	2766.10	2712.40	2624.70	2535.70	2447.30	2321.10	2251.70	2115.20	1994.20	1898.40	1801.50	1712.90	1610.60	1505.90	1378.60	1270.30	
43	2971.90	2976.40	2952.70	2928.70	2890.00	2838.50	2773.20	2723.10	2643.50	2553.20	2494.30	2389.30	2275.00	2134.50	2001.60	1908.10	1810.20	1720.40	1617.60	1516.70	1379.30	1269.60	
44	3001.20	2995.80	2973.50	2948.70	2899.50	2842.20	2776.10	2733.70	2660.00	2577.90	2511.50	2410.30	2299.30	2164.40	2043.50	1924.10	1816.60	1730.20	1625.80	1517.80	1376.50	1274.40	
45	3028.80	3014.30	2998.30	2968.80	2905.20	2842.30	2782.90	2744.40	2670.80	2607.60	2544.20	2426.40	2316.00	2190.60	2063.40	1938.80	1824.30	1736.80	1627.90	1521.40	1379.00	1277.40	
46	3049.30	3049.10	3016.70	2993.70	2923.80	2853.50	2786.90	2733.10	2682.70	2625.10	2563.50	2442.40	2346.30	2217.00	2079.70	1948.90	1838.50	1748.10	1633.20	1525.00	1384.90	1279.80	
47	3064.40	3064.20	3047.90	2996.20	2937.70	2866.50	2794.50	2737.60	2683.90	2630.10	2576.10	2464.20	2361.20	2226.70	2094.60	1963.10	1843.20	1748.20	1639.50	1524.50	1385.10	1280.90	
48	3083.50	3085.30	3050.00	3025.10	2958.80	2886.30	2815.90	2755.90	2707.30	2648.50	2592.10	2480.90	2371.00	2240.90	2110.90	1969.90	1849.10	1752.40	1645.70	1530.50	1392.10	1277.40	
49	3088.60	3095.20	3083.40	3039.30	2979.00	2895.80	2824.20	2768.80	2692.30	2631.00	2599.40	2492.30	2381.00	2255.10	2121.40	1977.20	1852.20	1761.60	1651.20	1532.00	1393.20	1271.70	
50	3074.60	3093.40	3054.60	3030.80	2993.80	2894.50	2784.60	2732.60	2686.60	2634.60	2593.50	2502.00	2388.00	2262.40	2131.50	1979.80	1857.50	1767.90	1652.50	1533.80	1388.10	1269.70	
51	3045.10	3057.00	3033.80	3003.10	2943.00	2868.00	2798.10	2737.60	2689.30	2639.80	2596.60	2513.50	2393.30	2271.00	2139.10	1986.70	1860.30	1774.00	1658.80	1535.90	1385.00	1266.80	
52	3093.30	2998.20	2981.10	2991.20	2947.10	2904.10	2809.10	2734.60	2682.70	2635.10	2598.30	2514.00	2397.20	2279.00	2142.30	2001.20	1867.70	1781.10	1664.20	1537.50	1388.40	1255.10	
53	2917.00	2937.00	2909.10	2932.20	2937.20	2891.40	2890.00	2820.00	2753.50	2682.90	2633.60	2608.30	2518.00	2400.30	2296.30	2153.70	2007.50	1887.90	1786.90	1670.00	1537.50	1383.20	
54	2812.50	2818.20	2821.10	2843.30	2883.10	2864.90	2809.80	2763.50	2684.50	2638.20	2603.70	2512.60	2410.30	2303.10	2166.00	2010.70	1890.00	1787.80	1675.10	1537.70	1380.10	1245.40	
55	2750.00	2710.00	2704.10	2736.90	2792.50	2814.00	2786.70	2773.80	2693.10	2645.50	2601.80	2518.30	2425.90	2313.20	2176.70	2024.10	1896.50	1797.90	1672.50	1535.20	1374.60	1240.70	
56	2590.40	2593.10	2595.40	2634.40	2691.50	2749.40	2786.70	2757.80	2702.00	2652.70	2605.60	2523.40	2442.20	2320.40	2186.80	2034.40	1905.40	1805.90	1673.20	1532.00	1367.60	1234.10	
57	2459.70	2467.90	2489.10	2520.50	2590.40	2658.90	2699.20	2733.90	2703.20	2638.40	2615.10	2531.50	2458.50	2338.30	2197.50	2048.60	1906.10	1806.70	1678.40	1530.90	1358.60	1228.70	
58	2364.90	2369.50	2385.00	2414.30	2479.80	2564.30	2632.50	2703.80	2703.50	2642.70	2618.00	2542.60	2468.40	2352.00	2200.90	2056.20	1915.70	1809.70	1677.20	1522.00	1355.30	1222.70	
59	2252.20	2258.80	2268.40	2309.90	2386.20	2467.80	2551.50	2655.80	2680.00	2640.40	2624.00	2556.80	2474.30	2370.50	2213.20	2064.00	1915.80	1806.60	1671.70	1518.00	1348.70	1216.80	
60	2134.90	2142.60	2151.40	2197.80	2283.20	2364.40	2458.60	2557.10	2655.50	2652.50	2620.70	2563.60	2487.60	2379.40	2220.20	2070.30	1915.10	1804.80	1688.00	1508.00	1342.90	1211.50	
61	2002.20	1993.50	2020.00	2080.90	2172.40	2256.10	2343.10	2437.80	2614.50	2641.80	2621.20	2572.60	2504.70	2393.00	2230.00	2078.90	1924.60	1810.00	1668.30	1499.20	1331.00	1201.30	
62	1870.70	1876.80	1895.10	1944.20	2054.20	2154.50	2245.40	2340.40	2547.90	2616.10	2624.20	2585.30	2522.60	2403.40	2248.60	2088.30	1931.30	1816.30	1658.90	1489.20	1325.20	1189.10	
63	1759.40	1761.80	1774.80	1818.30	1927.00	2040.10	2144.60	2250.80	2468.90	2629.60	2635.70	2597.90	2536.00	2420.00	2262.00	2096.80	1934.10	1809.70	1651.20	1476.60	1317.20	1175.30	

[illegible]



STREETLIGHT ISOCANDELA DIAGRAM

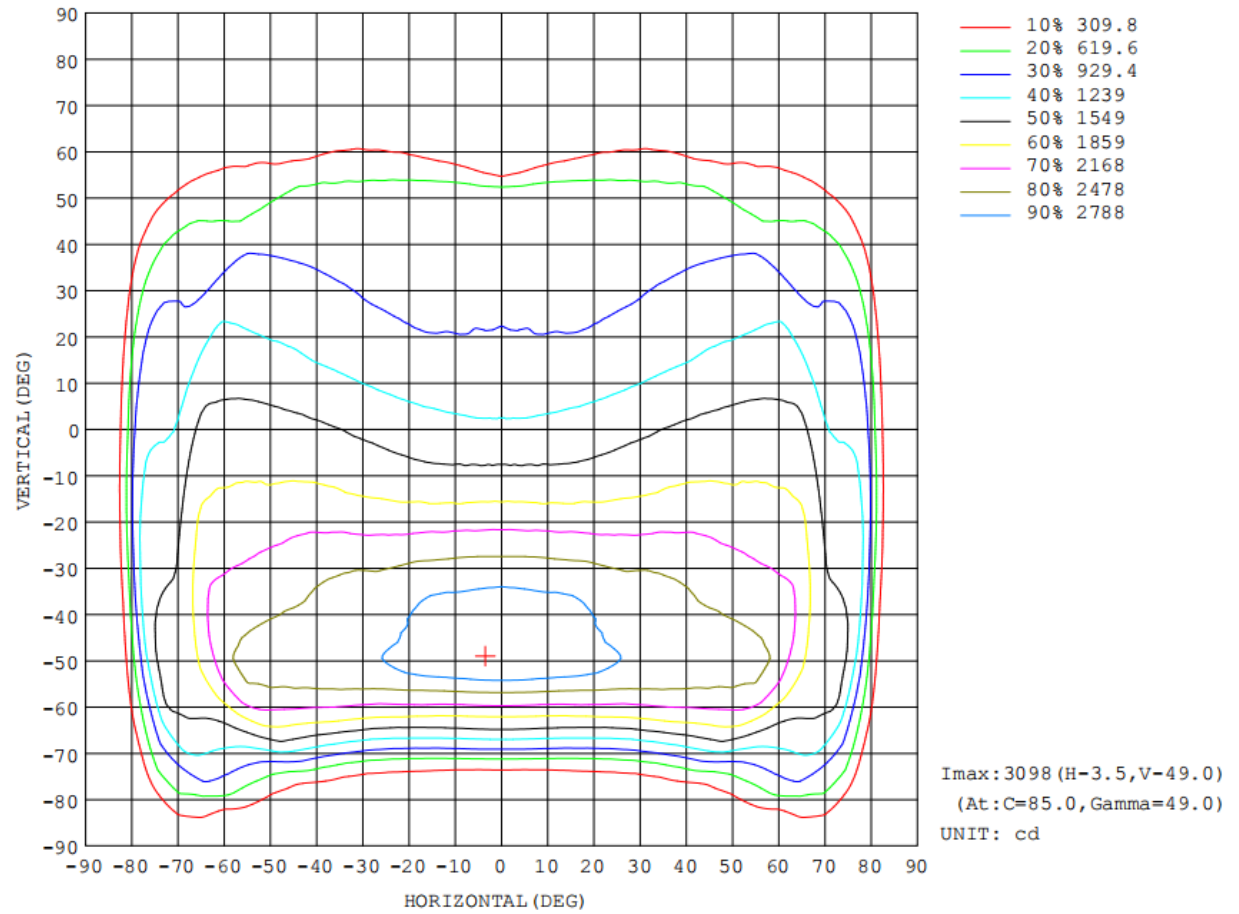


Classification:

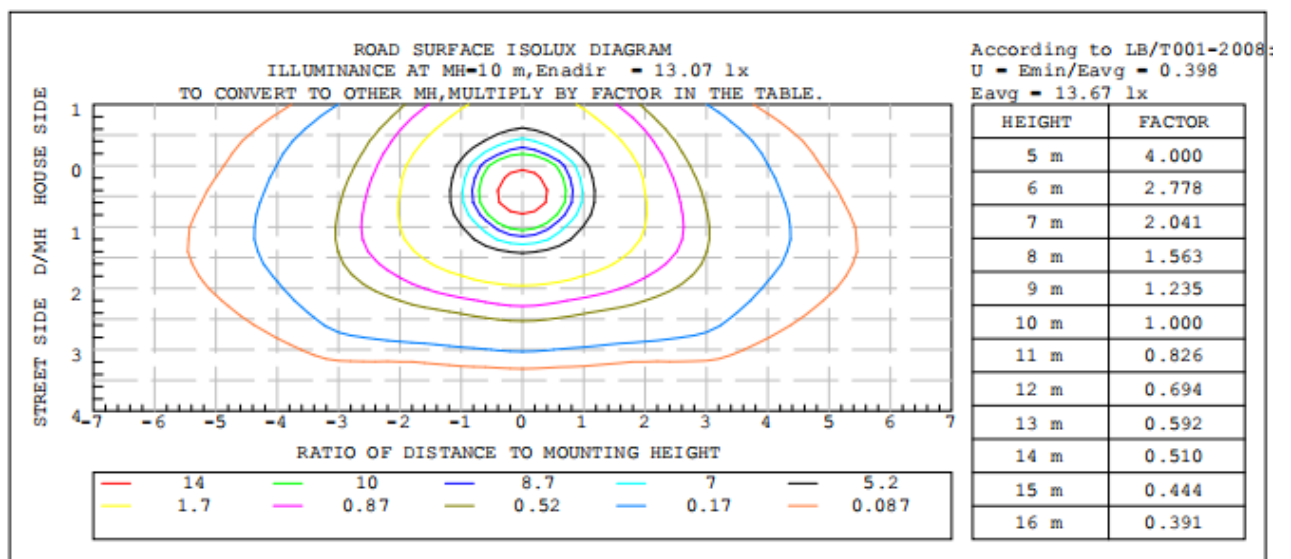
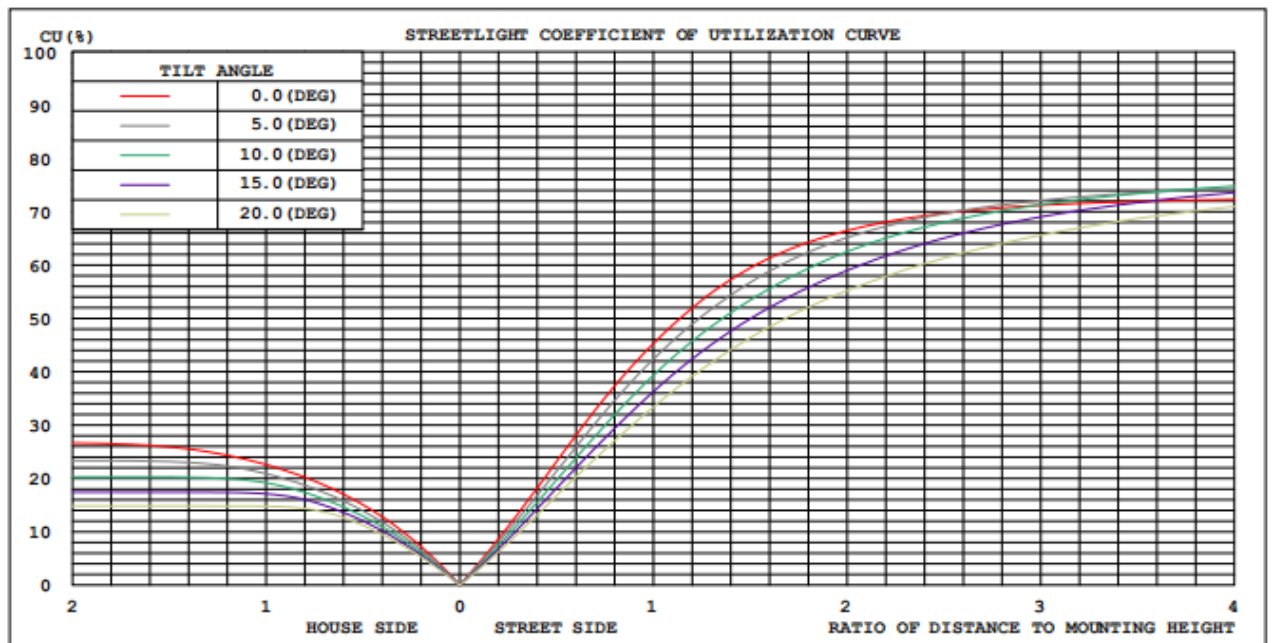
IES:Type III - Very Short
CIE:Average - Short
IES:None cut-off
CIE:Non-cut-off
Max.At80:229.1cd/klm
Max.At90:0cd/klm
Max.80-90:229.1cd/klm
NRB 5101:Semi limited[24.8%]

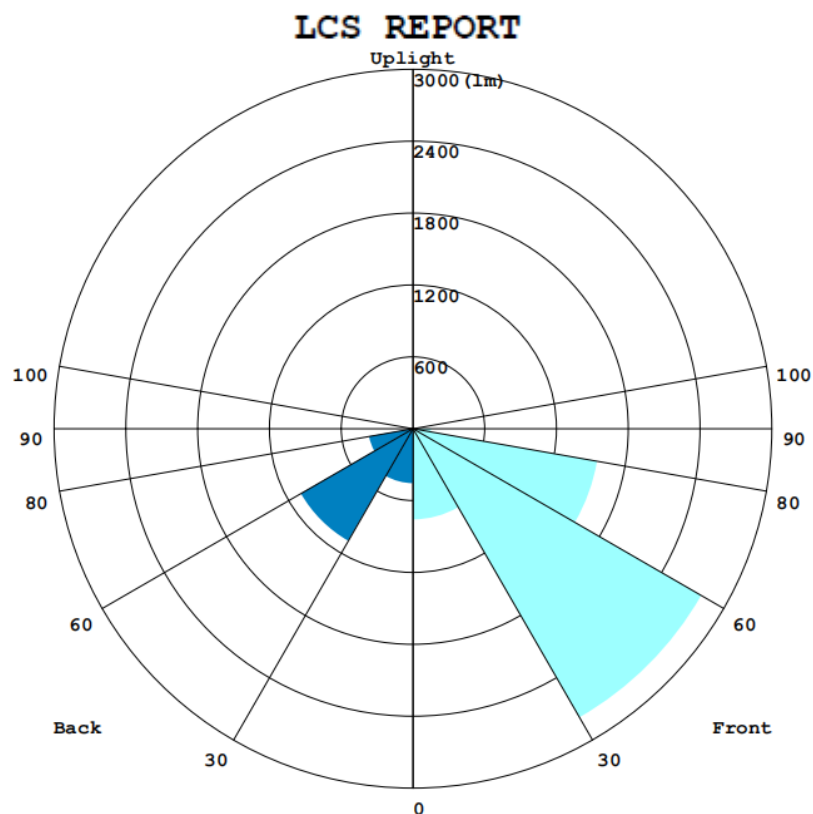
ISOCANDELA DIAGRAM	
UNIT	cd
Imax=100%	3099
90%	2789
80%	2479
70%	2169
60%	1860
50%	1550
40%	1240
30%	930
20%	620
10%	310
5%	155

ISOCANDELA DIAGRAM



COEFFICIENT OF UTILIZATION CURVE AND ISOLUX DIAGRAM





IESNA Luminaire Flux Distribution Table:

Zone	Lumens	Luminaire %
FL - Front-Low(0-30)	757.84	10.6
FM - Front-Medium(30-60)	2784.1	38.8
FH - Front-High(60-80)	1564.1	21.8
FVH - Front-Very High(80-90)	151.47	2.1
Total Forward Light	5257.5	73.3

BL - Back-Low(0-30)	456.05	6.4
BM - Back-Medium(30-60)	1082.6	15.1
BH - Back-High(60-80)	372.21	5.2
BVH - Back-Very High(80-90)	8.2565	0.1
Total Back Light	1919.1	26.7

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	1919.1	0	1919.1
Street Side	5257.5	0	5257.5

Photo



Overview



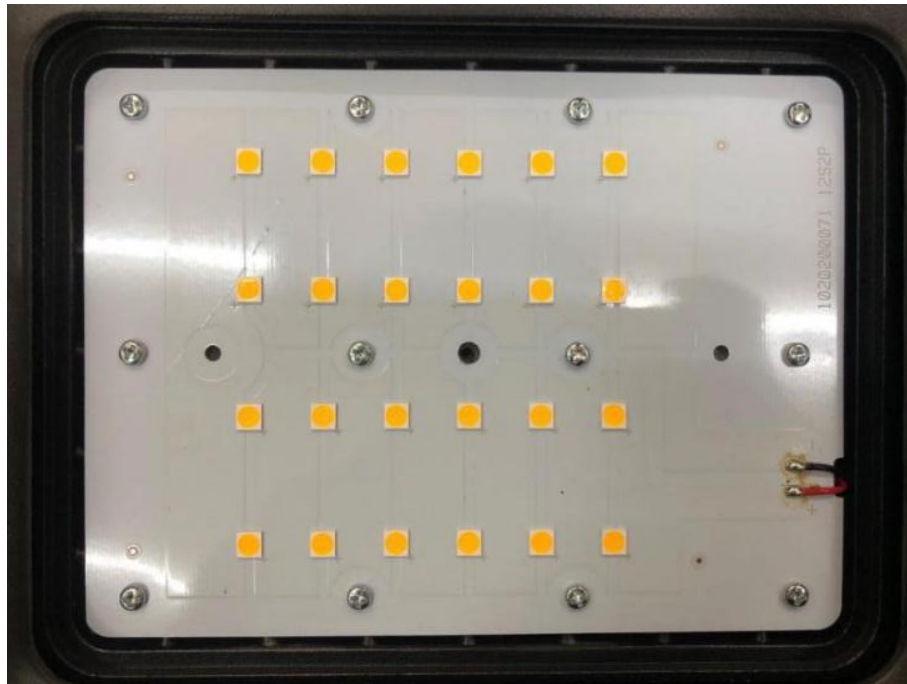
Back-side



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 Communiqué dated January 2009).*

2020-06-09 through 2021-06-30

Effective Dates




For the National Voluntary Laboratory Accreditation Program