

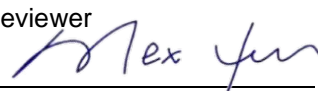


Prüfbericht Test report		Auftragsnr. / order no.: 244268555 Berichtsnr. / report no.: 60397035 001	
Auftraggeber client:		Auftragsdatum / date of order: 23.09.2020	
NISKO GROUP LTD. 41 HAMAAYAN MODI'IN, Israel.		AG-Referenz-Nr. / client reference no.: -	
Inhalt des Auftrags content of order:		Electrical and Photometric Measurement to LM-79-08	
Prüfgrundlagen test specifications:		IES LM-79-08	
Prüfgegenstand test item:		LED Street Light	
EAN-Nr. / no.: N/A			
Bezeichnung identification:	EL-SL18MA-50W CLASS I T3VS 4000K		
Eingang Prüfgegenstand receipt of test item:	23.09.2020		
Prüfgegenstands-Nr. test item no.:	A002073542-007		
Prüfzeitraum und -ort period of test and location:	23.09.2020-28.08.2020, Shanghai Xingshang Photoelectric technology Co., 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 /PE		06.11.2020 Alex Yan /Reviewer	
 Datum Name/Stellung Unterschrift Date Name/Position Signature		 Datum Name/Stellung Unterschrift Date Name/Position Signature	
<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 4000K	A002073542-007	200-240Vac, 50/60Hz	4000K	50W	LUMILEDS LUXEON 5050- L15040705006000 00 12S2P

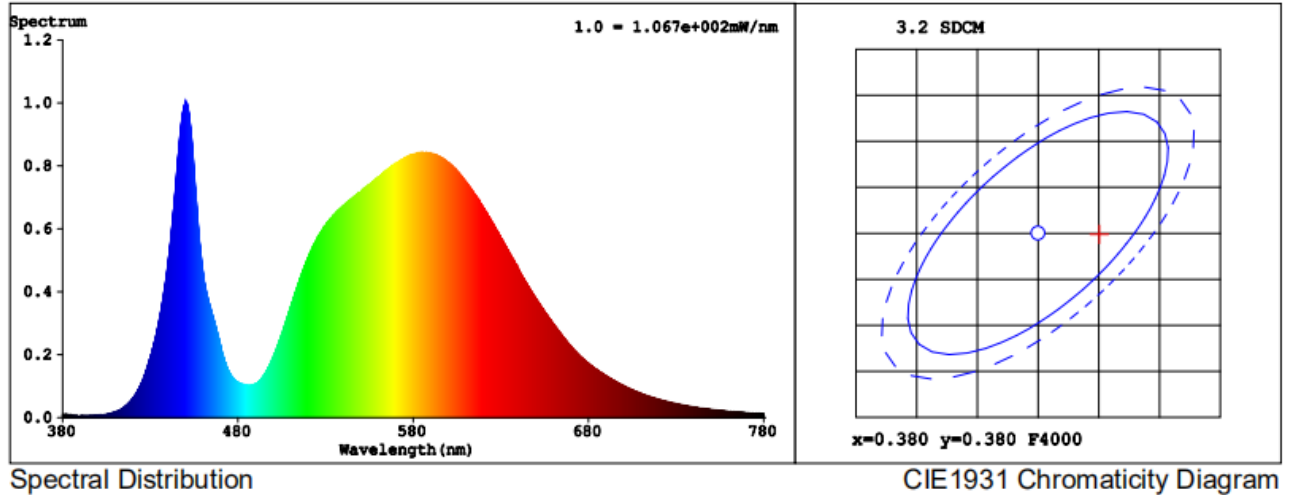
Test conditions:	
Number of hours operated prior to measurement	<u>0</u> hours
Total operating time of the product for measurements including stabilization	<u>2</u> hours and <u>30</u> minutes
Ambient	25 °C
Orientation	As normal use
Stabilization time	<u>90</u> minutes
Test method	Type C Gonio-photometer 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-SL18MA-50W CLASS I T3VS 4000K
Total luminous flux (lm)	7116
Input wattage (W)	49.28
Input current (A)	0.2306
Frequency (Hz)	50
Power factor	0.9715
Efficacy (Lm/W)	144.40
CCT (K)	3901
Chromaticity x	0.3850
Chromaticity y	0.3799
Chromaticity u'	0.2269
Chromaticity v'	0.5036
CRI	73
R9	0
Du'v' (Max.)	-0.000137
THDI(%)	4.115
LCS BUG Rating	B2-U0-G1, Semi cut-off

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

EL-SL18MA-50W CLASS I T3VS 4000K



Dominant WL: 579.4nm
Peak WL: 450nm

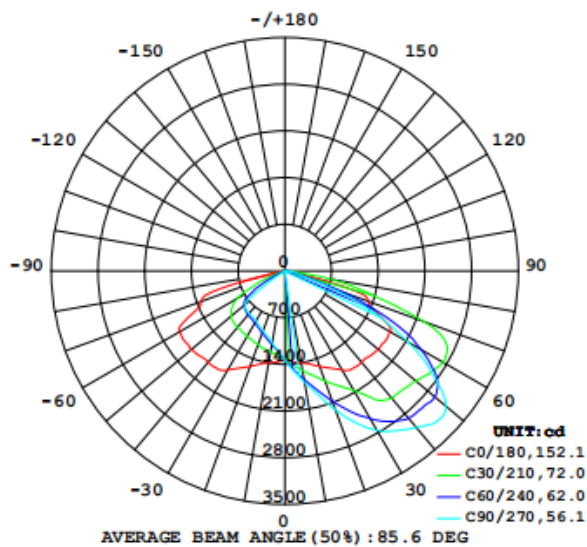
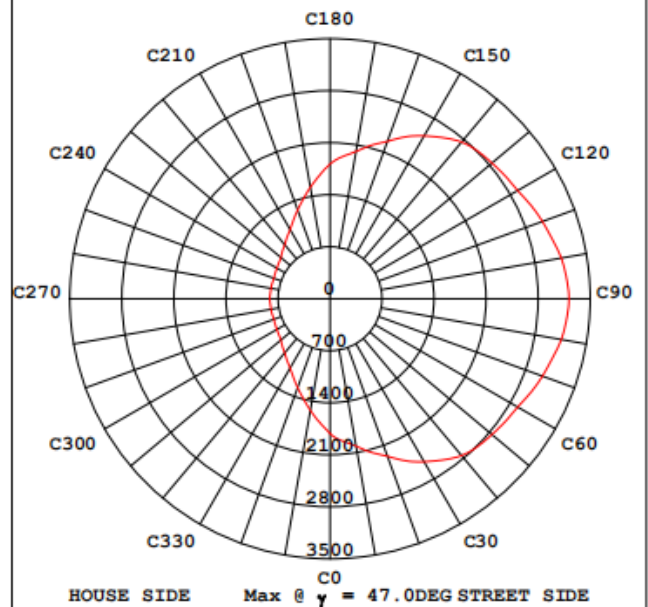
Luminous Intensity Distribution, Ambient temperature: 25°C (Clause 10 of LM-79)

Description	Data
Model	EL-SL18MA-50W CLASS I T3VS 4000K
Test voltage (V)	220VAC
Test current (A)	0.2306
Test wattage (W)	49.28
Frequency (Hz)	50
Power factor	0.9715
Central luminous intensity (cd)	1322.5
Max. luminous intensity(cd)	3213.7 (C=0,Gamma=47)

For the distribution curve see next page.

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DATA OF LAMP		PHOTOMETRIC DATA Eff: 144.40 lm/W			
MODEL	EL-SL18MA	I _{max} (cd)	3213.7	η street_up (%)	0.0
NOMINAL POWER (W)	50	LOR (%)	100.0	η street_down (%)	73.3
RATED VOLTAGE (V)	220-240	TOTAL FLUX (lm)	7116	η house_up (%)	0.0
NOMINAL FLUX (lm)	7115.98	MAXIMUM @ (C, γ)	0,47.0	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	17.778

**INTENSITY DISTRIBUTION DIAGRAM
IN C PLANS**

**MAX INTENSITY CONE SURFACE
DISTRIBUTION DIAGRAM**


Zonal Lumen Summary and Percentages

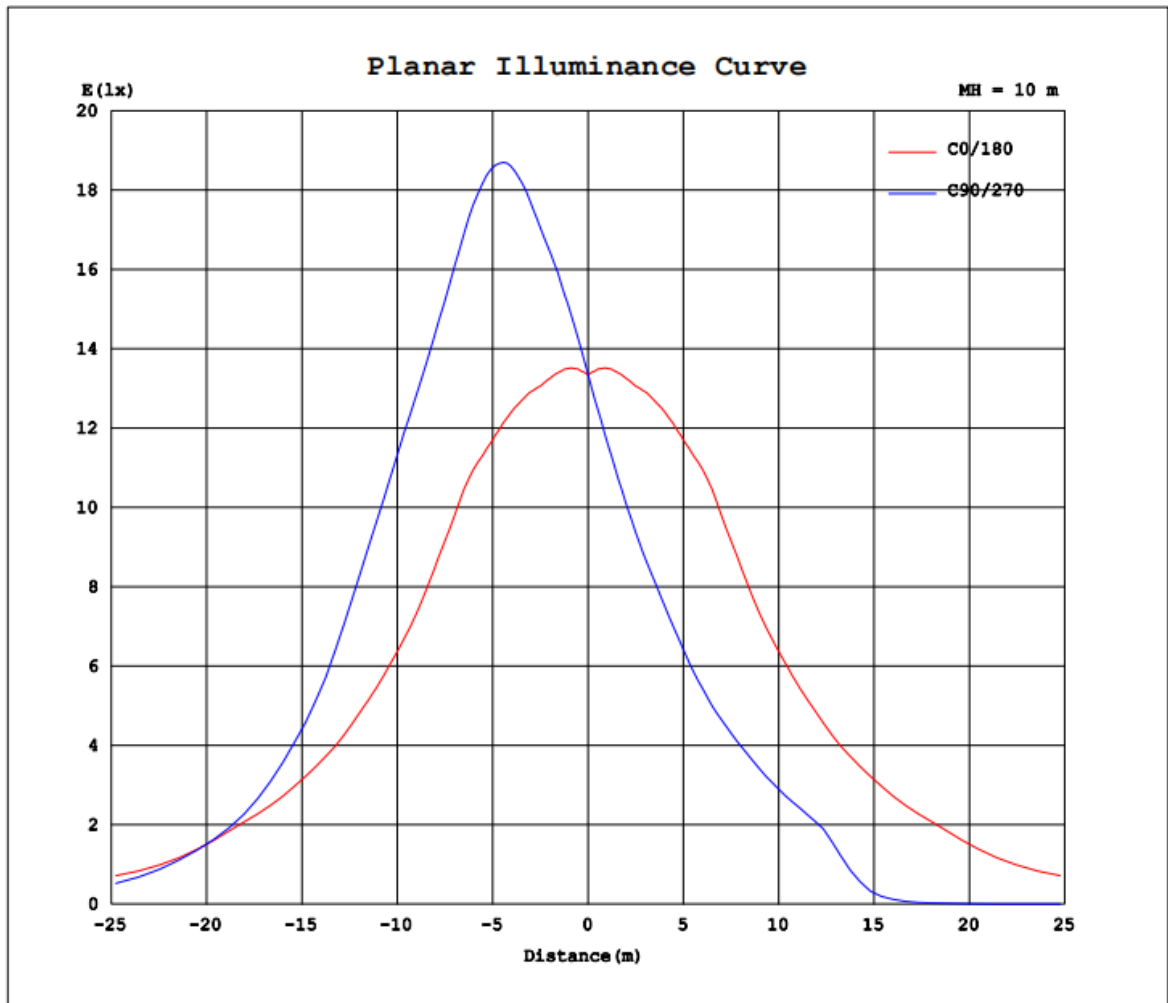
Zonal Lumen Summary

Zone	Lumens	%Lamp	%Fixt
0-20	540.13	7.60	7.60
0-30	1285.47	18.10	18.10
0-40	2406.78	33.80	33.80
0-60	5387.42	75.70	75.70
0-80	7066.62	99.30	99.30
0-90	7115.99	100.00	100.00
10-90	6986.15	98.20	98.20
20-40	1866.65	26.20	26.20
20-50	3302.02	46.40	46.40
40-70	4169.15	58.60	58.60
60-80	1679.2	23.60	23.60
70-80	490.70	6.90	6.90
80-90	49.37	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	7115.99	100.00	100.00

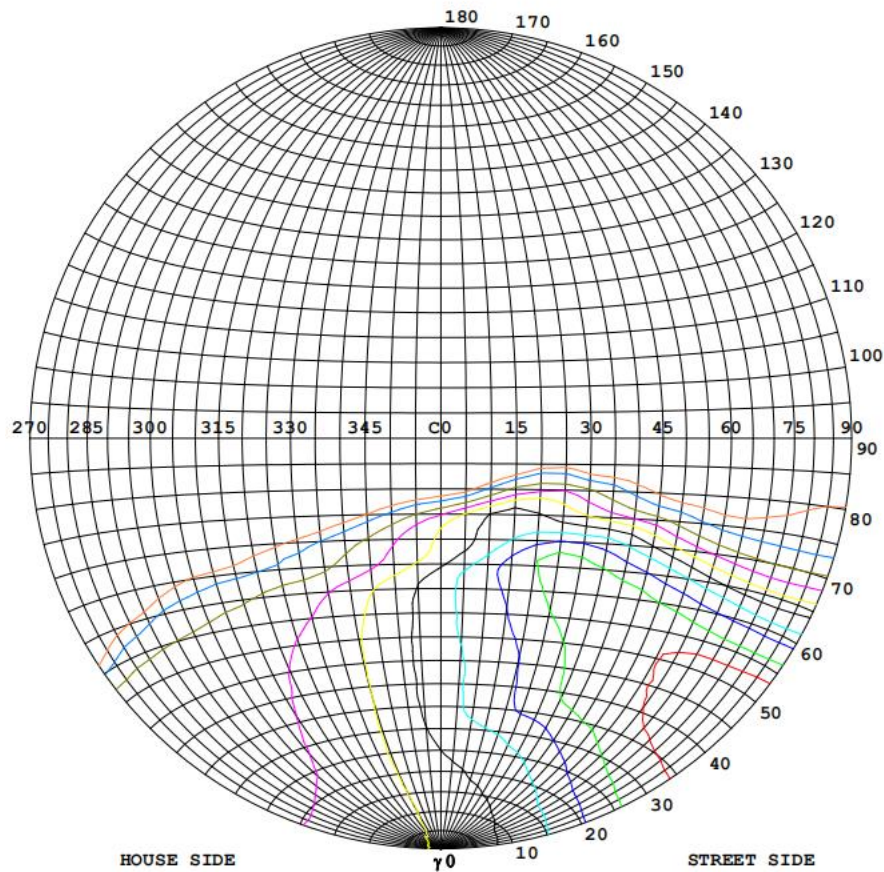
Total Luminaire Efficiency = 100.00%

Luminous Intensity Distribution Data

Vertical Angles		Keywords		Candela																		2D										3D											
		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																		
33	2867.000	2860.600	2845.000	2822.100	2786.000	2745.600	2685.200	2608.100	2524.700	2472.000	2387.900	2289.500	2218.300	2172.900	2104.900	2047.500	1950.800	1875.000	1775.100	1627.400	1511.400	1404.700																					
34	2894.200	2891.300	2872.900	2855.700	2824.500	2788.300	2719.500	2651.500	2562.900	2514.000	2436.000	2346.500	2276.900	2227.300	2157.800	2078.200	1972.700	1889.800	1780.000	1631.600	1515.300	1400.600																					
35	2924.600	2913.500	2900.600	2886.300	2852.900	2820.400	2753.600	2686.900	2609.100	2561.100	2487.300	2407.700	2349.300	2288.800	2185.900	2089.700	1978.800	1898.900	1781.000	1639.800	1511.700	1403.100																					
36	2948.400	2940.600	2930.500	2907.300	2886.500	2850.800	2787.700	2722.200	2649.200	2596.600	2533.400	2463.000	2396.800	2313.400	2192.500	2100.300	1983.900	1897.600	1783.300	1645.700	1513.900	1397.600																					
37	2976.800	2970.000	2953.300	2928.000	2900.400	2878.400	2811.600	2757.500	2686.900	2645.400	2577.200	2516.700	2431.600	2330.600	2206.700	2102.800	1986.200	1900.200	1789.500	1655.700	1519.000	1395.800																					
38	3009.000	2996.100	2978.000	2949.300	2923.100	2899.000	2839.200	2790.200	2724.500	2674.300	2615.300	2554.500	2449.400	2348.900	2211.400	2105.900	1994.600	1900.300	1792.800	1659.300	1517.200	1394.400																					
39	3035.800	3019.900	3002.500	2967.500	2940.900	2916.100	2863.300	2819.300	2762.100	2704.900	2649.200	2574.600	2475.300	2361.300	2214.400	2109.900	1996.900	1906.000	1789.400	1657.200	1519.200	1389.700																					
40	3063.200	3049.600	3028.800	2981.100	2958.700	2930.500	2878.600	2831.900	2783.600	2735.500	2675.900	2589.300	2491.100	2363.600	2217.000	2109.800	1998.000	1904.100	1787.400	1651.500	1518.500	1389.600																					
41	3093.200	3076.800	3049.100	3000.200	2973.200	2948.000	2892.900	2852.400	2804.500	2766.100	2688.800	2605.800	2495.500	2365.500	2219.300	2107.900	1999.600	1903.800	1783.500	1652.300	1516.600	1389.900																					
42	3124.200	3101.200	3070.600	3015.700	2978.000	2946.400	2897.900	2867.700	2822.700	2781.600	2701.700	2615.800	2491.400	2376.300	2225.600	2116.700	1997.300	1899.900	1782.500	1654.700	1519.700	1393.300																					
43	3156.000	3127.900	3099.500	3035.500	2983.300	2955.100	2898.900	2872.000	2830.900	2798.700	2714.600	2619.000	2497.200	2383.000	2234.900	2115.700	1995.200	1901.500	1786.400	1660.500	1524.700	1391.100																					
44	3187.600	3151.800	3120.100	3056.300	3003.600	2962.100	2900.800	2883.900	2828.600	2802.700	2727.500	2621.700	2504.900	2384.900	2240.100	2113.900	1993.300	1904.000	1793.100	1667.700	1523.600	1386.500																					
45	3201.800	3178.900	3142.400	3072.500	3019.500	2969.100	2909.700	2879.700	2834.400	2802.300	2734.100	2630.800	2506.500	2390.700	2241.000	2120.400	2001.400	1909.200	1800.800	1664.800	1525.400	1390.100																					
46	3211.700	3187.800	3151.300	3086.200	3036.900	2973.000	2908.800	2875.100	2833.000	2808.200	2736.100	2638.200	2519.900	2396.300	2247.100	2127.400	2009.400	1917.000	1809.200	1663.600	1527.300	1391.500																					
47	3213.700	3192.900	3158.300	3095.500	3040.700	2980.300	2915.100	2878.500	2842.500	2809.200	2753.400	2647.000	2531.500	2405.200	2254.700	2138.500	2012.500	1920.900	1813.300	1664.900	1526.000	1391.700																					
48	3210.900	3181.800	3153.500	3094.300	3041.300	2976.600	2935.400	2880.500	2831.000	2815.600	2760.800	2668.400	2539.000	2422.200	2267.600	2157.700	2019.500	1923.300	1818.900	1662.500	1520.500	1393.000																					
49	3191.600	3156.900	3130.900	3067.100	3032.600	2978.500	2939.400	2882.500	2831.000	2814.700	2770.000	2687.900	2544.100	2437.000	2282.200	2167.100	2028.400	1935.600	1824.900	1670.200	1520.600	1387.900																					
50	3195.500	3113.600	3086.200	3039.300	3016.000	2967.800	2934.600	2879.600	2823.700	2828.800	2779.300	2686.000	2565.300	2452.300	2296.800	2185.000	2040.100	1941.100	1832.200	1667.600	1517.600	1384.400																					
51	3099.600	3059.200	3030.100	2992.300	2977.000	2950.200	2924.300	2880.000	2836.800	2836.200	2795.200	2703.000	2584.500	2468.100	2318.200	2186.200	2051.900	1950.800	1829.700	1664.300	1515.700	1383.600																					
52	3021.400	2981.500	2953.500	2930.900	2927.400	2920.100	2892.500	2872.200	2839.900	2848.500	2805.600	2720.100	2600.900	2483.100	2333.900	2200.900	2061.300	1960.800	1825.800	1656.000	1510.900	1378.700																					
53	2926.500	2892.400	2868.500	2859.100	2865.100	2872.100	2872.400	2863.900	2839.900	2848.700	2818.500	2737.200	2619.000	2501.900	2349.500	2212.600	2065.600	1966.200	1822.800	1652.200	1510.200	1372.100																					
54	2809.200	2794.500	2768.100	2774.700	2786.000	2821.000	2830.600	2848.100	2837.900	2844.300	2827.700	2754.000	2642.900	2523.100	2369.300	2227.900	2069.500	1960.800	1831.700	1649.000	1504.100	1366.300																					
55	2714.200	2689.200	2668.300	2682.700	2700.600	2752.200	2777.800	2825.200	2818.800	2838.400	2835.000	2762.600	2644.400	2544.200	2384.700	2236.500	2072.700	1962.800	1834.900	1651.300	1499.100	1353.800																					
56	2609.800	2585.500	2569.500	2581.200	2604.900	2663.200	2711.600	2780.100	2782.200	2828.100	2837.100	2787.100	2679.000	2567.300	2400.000	2246.700	2081.700	1969.000	1837.000	1651.000	1491.700	1347.400																					
57	2520.200	2480.400	2472.900	2481.200	2499.500	2562.900	2623.700	2718.800	2744.700	2799.400	2832.800	2794.100	2694.400	2586.700	2424.600	2255.700	2091.900	1972.700	1836.200	1653.600	1486.900	1336.000																					
58	2399.600	2368.300	2364.100	2387.700	2408.800	2464.000	2548.200	2650.600	2708.500	2771.200	2818.400	2803.000	2709.700	2603.600	2446.700	2275.300	2099.800	1978.700	1828.100	1646.500	1480.200	1322.000																					
59	2266.400	2239.200	2239.500	2279.700	2313.000	2369.800	2456.500	2563.500	2648.500	2730.000	2797.400	2802.200	2725.100	2624.100	2462.700	2291.500	2114.500	1985.500	1822.400	1631.300	1465.100	1300.900																					
60	2125.300	2090.000	2103.500	2141.100	2202.100	2272.100	2357.800	2476.000	2570.800	2681.900	2773.200	2791.000	2740.900	2637.800	2494.200	2311.600	2123.100	1985.100	1819.200	1617.100	1452.700	1280.300																					
61	1986.200	1952.800	1957.600	1994.700	2079.900	2162.400	2255.400	2341.500	2457.000	2624.900	2731.500	2782.100	2742.200	2639.300	2510.500	2332.600	2137.800	1979.200	1816.100	1603.600	1421.100	1229.100																					
62	1851.600	1823.600	1819.800	1853.200	1940.100	2041.100	2168.500	2291.400	2407.700	2567.200	2763.500	2763.500	2732.200	2647.200	2533.600	2346.300	2150.900	1982.000	1795.700	1548.400	1347.900	1144.500																					
63	1739.900	1696.700	1683.200	1720.700	1780.000	1908.900	2045.200	2181.200	2309.500	2473.100	2596.100	2725.700	2722.400	2660.900	2539.300	2360.200	2165.000	1964.600	1714.900	1473.000	1264.500	1057.700																					
64	1614.100	1564.500	1541.200	1566.800	1627.000	1747.100	1899.600	2063.300	2237.600	2371.000	2512.400	2669.700	2710.900	2675.300	2543.700	2367.700	2152.400	1927.100	1635.600	1391.500	1179.300	963.670																					
65	1477.900	1415.000	1395.300	1411.900	1469.900	1579.900	1764.000	1941.900	2107.300	2279.500	2417.700	2612.900	2670.600	2675.300	2563.200	2374.400	2150.000	1824.700	1547.900	1314.600	1099.100	912.100																					



STREETLIGHT ISOCANDELA DIAGRAM

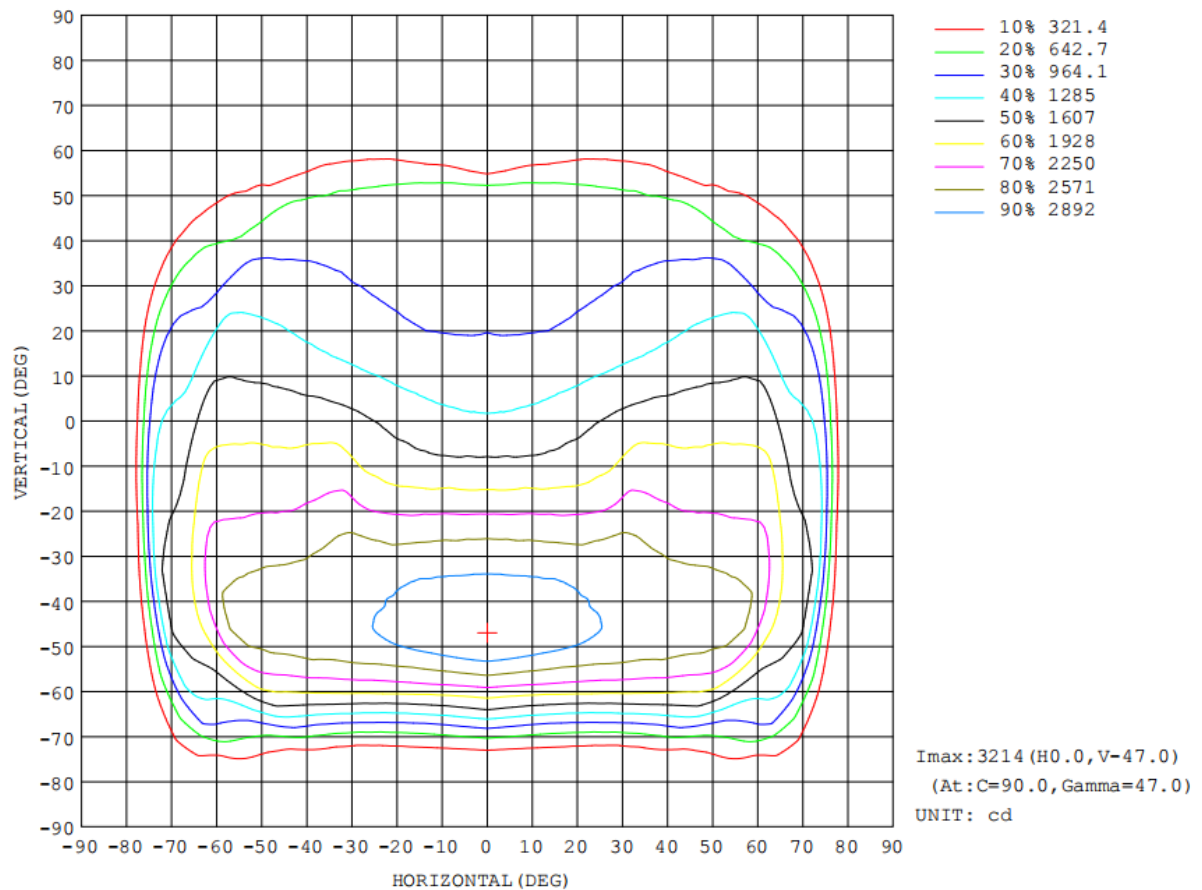


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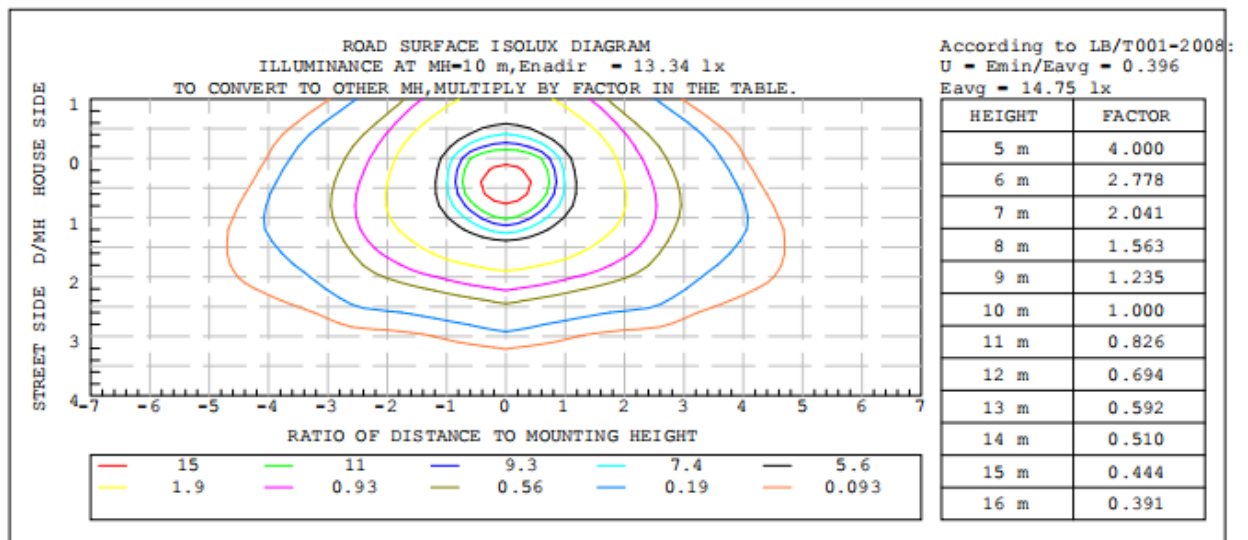
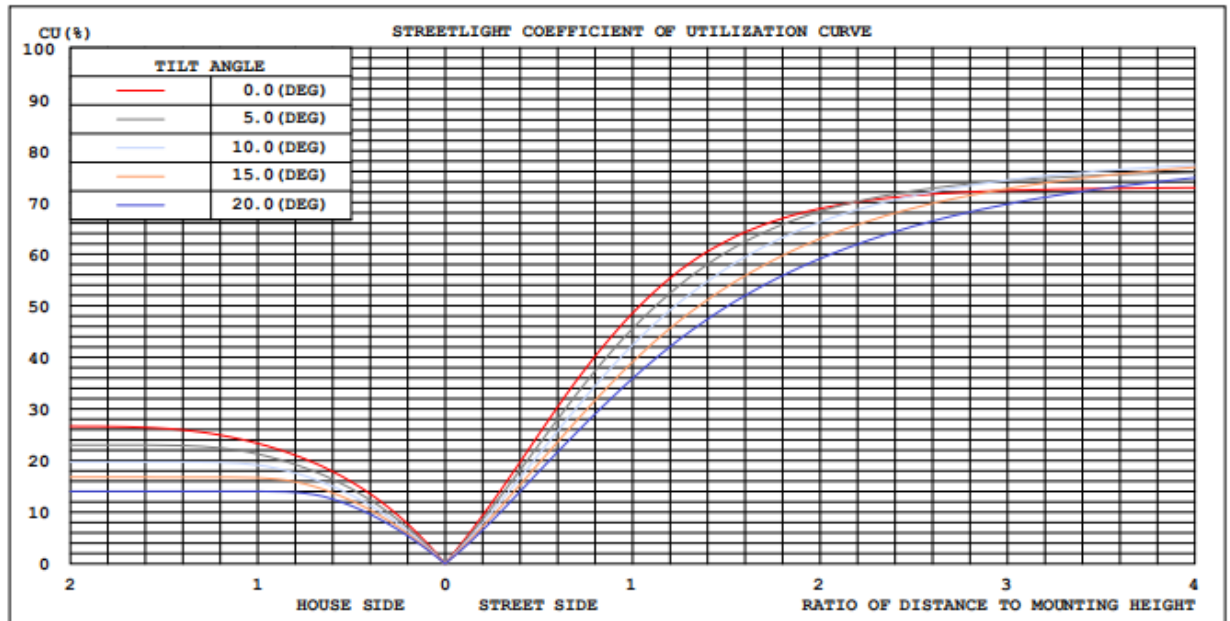
IES: Type III - Very Short
 CIE: Average - Short
 IES: Semi cut-off
 CIE: Non-cut-off
 Max. At 80: 132.9 cd/klm
 Max. At 90: 0 cd/klm
 Max. 80-90: 132.9 cd/klm
 NRB 5101: Semi limited [23.1%]

ISOCANDELA DIAGRAM	
UNIT	cd
I _{max} =100%	3214
90%	2892
80%	2571
70%	2250
60%	1928
50%	1607
40%	1285
30%	964
20%	643
10%	321
5%	161

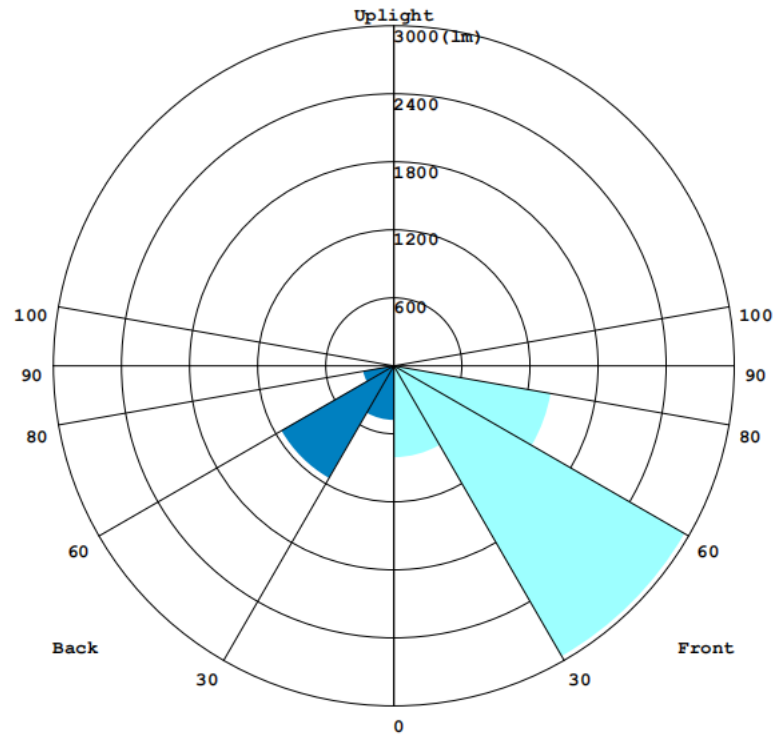
ISOCANDELA DIAGRAM



COEFFICIENT OF UTILIZATION CURVE AND ISOLUX DIAGRAM



LCS REPORT



IESNA Luminaire Flux Distribution Table:

Zone	Lumens	Luminaire %
FL - Front-Low (0-30)	807.12	11.3
FM - Front-Medium (30-60)	2958.5	41.6
FH - Front-High (60-80)	1404.7	19.7
FVH - Front-Very High (80-90)	48.384	0.7
Total Forward Light	5218.7	73.3

BL - Back-Low (0-30)	478.35	6.7
BM - Back-Medium (30-60)	1143.5	16.1
BH - Back-High (60-80)	274.47	3.9
BVH - Back-Very High (80-90)	0.98197	0.0
Total Back Light	1897.3	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-G1
------------------------------	----------

Zone	Downward Lumens	Upward Lumens	Total Lumens
House Side	1897.3	0	1897.3
Street Side	5218.7	0	5218.7

Photo



overview



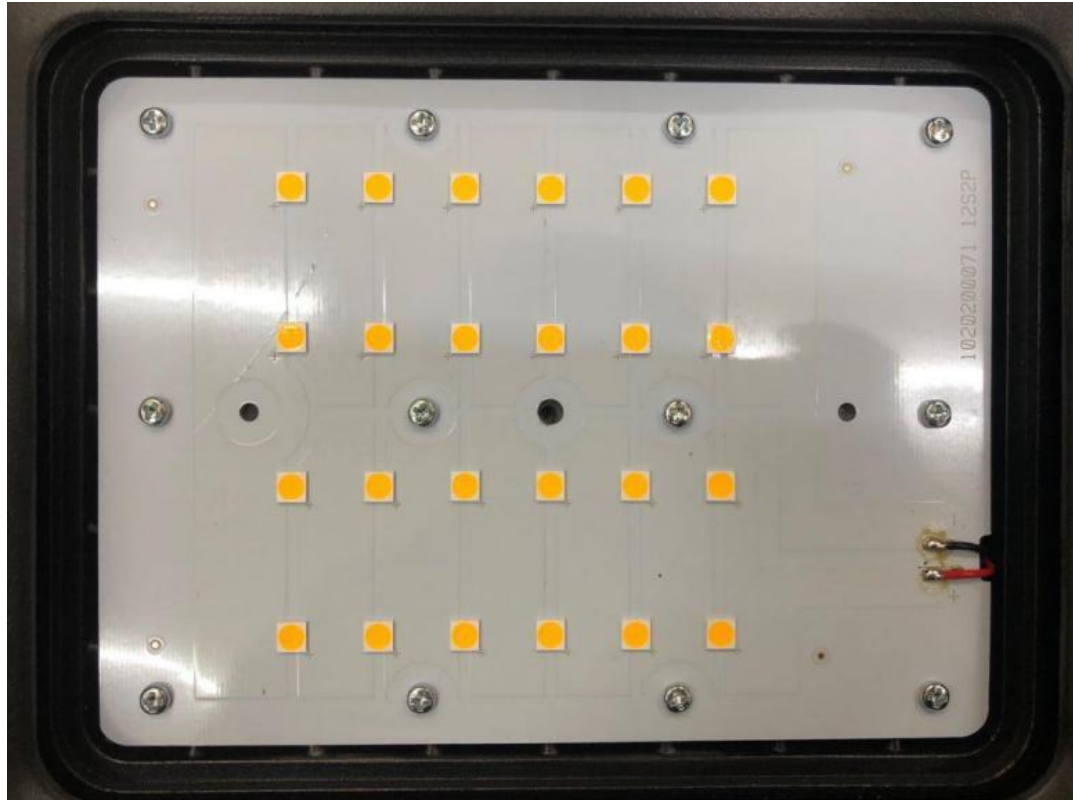
Back-side



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

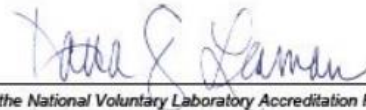
*is accredited by the National Voluntary Laboratory Accreditation Program for specific services,
listed on the Scope of Accreditation, for:*

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