


Prüfbericht Test report		Auftragsnr. / order no.: 244268555 Berichtsnr. / report no.: 60397029 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-SL 18LA-160W CLASS I T3VS 3000K				
Eingang Prüfgegenstand receipt of test item:	23.09.2020				
Prüfgegenstands-Nr. test item no.:	A002073542-003				
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 / P. <i>Fernando Dai</i>		06.11.2020 Alex Yan / Reviewer <i>Alex Yan</i>			
Datum Date	Name/Stellung Name/Position	Unterschrift Signature	Datum Date	Name/Stellung Name/Position	Unterschrift 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-SL18LA-160W CLASS I T3VS 3000K	A002073542-003	200-240Vac, 50/60Hz	3000K	160W	LUMILEDS LUXEON 5050- L15030705006000 00 18S2P 2MODULE

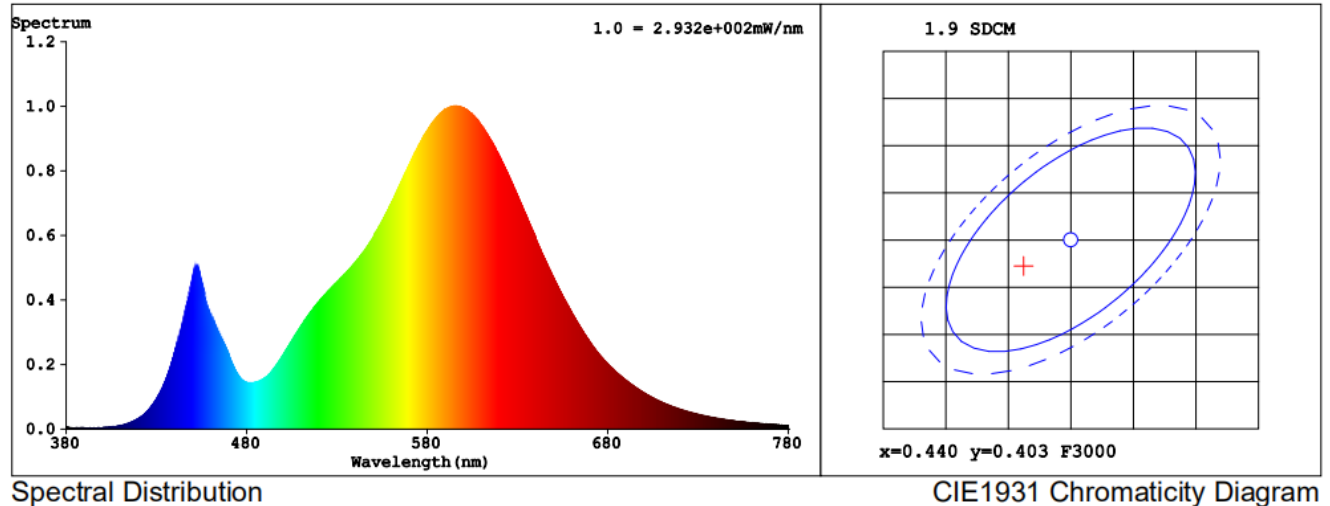
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Test conditions:	
Number of hours operated prior to measurement	<u>0</u> hours
Total operating time of the product for measurements including stabilization	<u>2</u> hours and <u>30</u> minutes
Ambient	25 °C
Orientation	As normal use
Stabilization time	<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

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Measured Results	
	EL-SL18LA-160W CLASS I T3VS 3000K
Total luminous flux (lm)	22574
Input wattage (W)	155.73
Input current (A)	0.7148
Frequency (Hz)	50
Power factor	0.9908
Efficacy (Lm/W)	144.95
CCT (K)	2980
Chromaticity x	0.4362
Chromaticity y	0.4002
Chromaticity u'	0.2518
Chromaticity v'	0.5198
CRI	74.1
R9	0
Du'v' (Max.)	-0.00144
THDI(%)	4.178
LCS BUG Rating	B3-U0-G3, Non cut-off

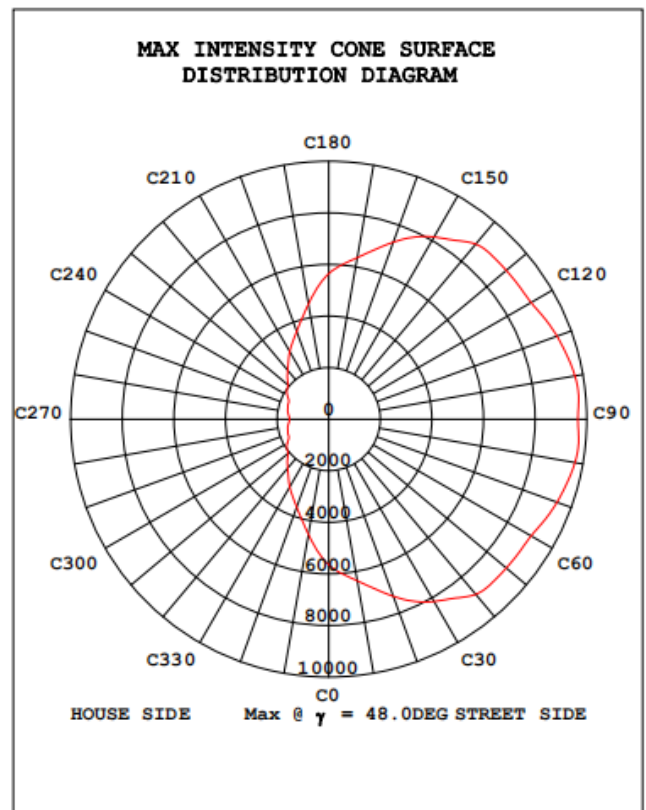
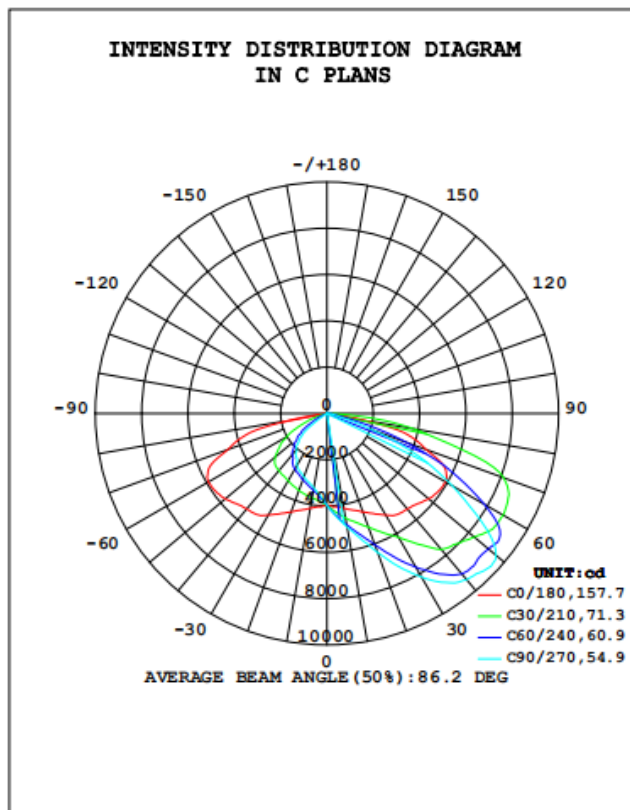
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Spectral power distribution: (Clause 10 of LM-79)
EL-SL18LA-160W CLASS I T3VS 3000K

Dominant WL: 583.4nm
Peak WL: 596nm
Luminous Intensity Distribution, Ambient temperature: 25°C (Clause 10 of LM-79)

Description	Data
Model	EL-SL18LA-160W CLASS I T3VS 3000K
Test voltage (V)	220VAC
Test current (A)	0.7148
Test wattage (W)	155.73
Frequency (Hz)	50
Power factor	0.9908
Central luminous intensity (cd)	3968.8
Max. luminous intensity(cd)	9722.4 (C=5, Gamma=48)

For the distribution curve see next page.
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DATA OF LAMP		PHOTOMETRIC DATA Eff: 144.95 lm/W			
MODEL	EL-SL18LA	I _{max} (cd)	9722.4	η street_up (%)	0.0
NOMINAL POWER (W)	160	LOR (%)	100.0	η street_down (%)	75.8
RATED VOLTAGE (V)	220-240	TOTAL FLUX (lm)	22574	η house_up (%)	0.0
NOMINAL FLUX (lm)	22573.7	MAXIMUM @ (C, γ)	5,48.0	η house_down (%)	24.2
LAMPS INSIDE	1	η up (%)	0.0	76 FLASHAREA (m2)	0.05000
TEST VOLTAGE (V)	220	η down (%)	100.0	SLI	24.327



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

Zone	Lumens	%Lamp	%Fixt
0-20	1612.87	7.10	7.10
0-30	3834.68	17.00	17.00
0-40	7198.28	31.90	31.90
0-60	16155.33	71.60	71.60
0-80	22165.69	98.20	98.20
0-90	22573.72	100.00	100.00
10-90	22185.68	98.30	98.30
20-40	5585.41	24.70	24.70
20-50	9891.35	43.80	43.80
40-70	12873.53	57.00	57.00
60-80	6010.41	26.60	26.60
70-80	2093.93	9.30	9.30
80-90	407.98	1.80	1.80
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	22573.72	100.00	100.00

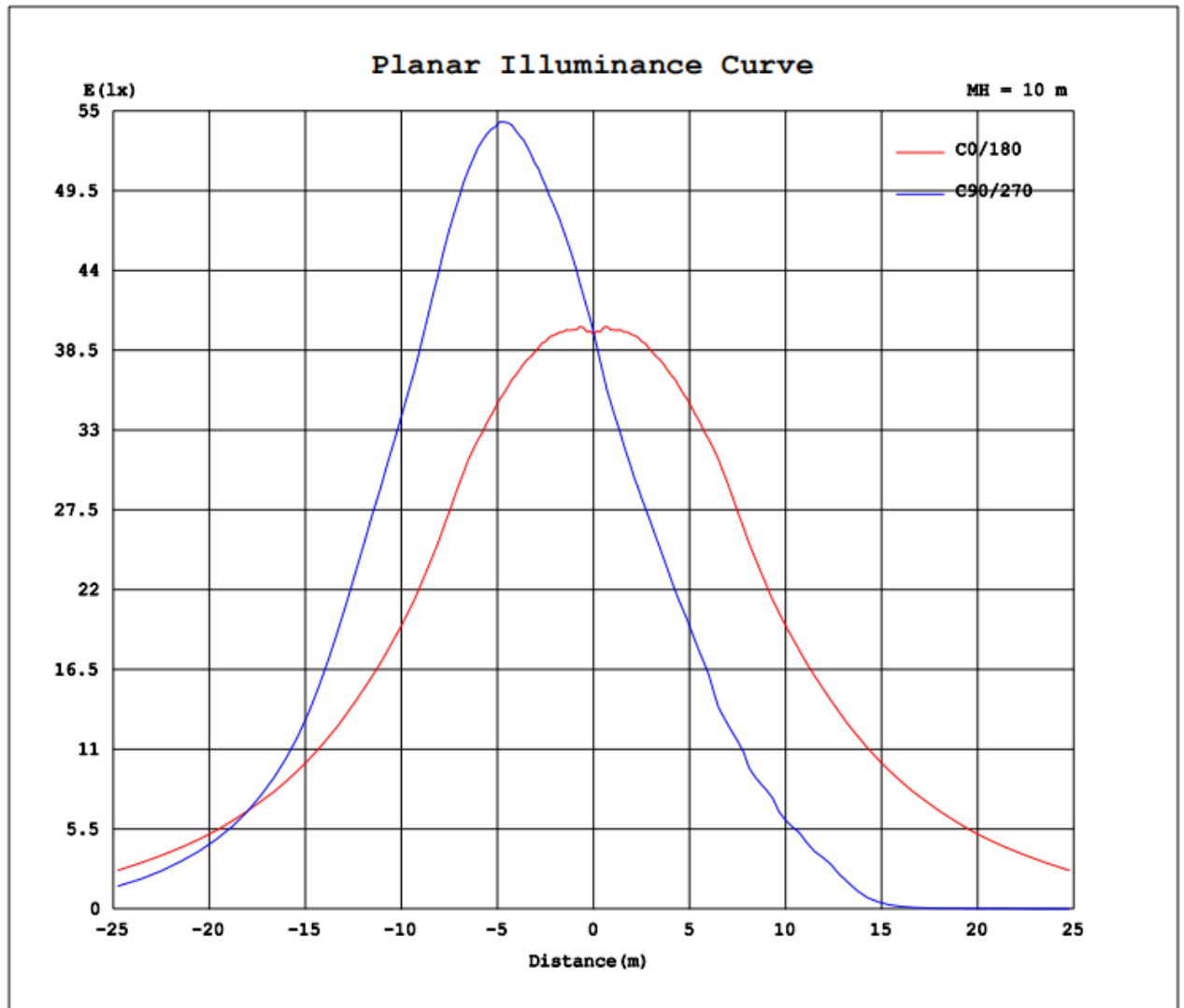
Total Luminaire Efficiency = 100.00%

Produkte /
Products

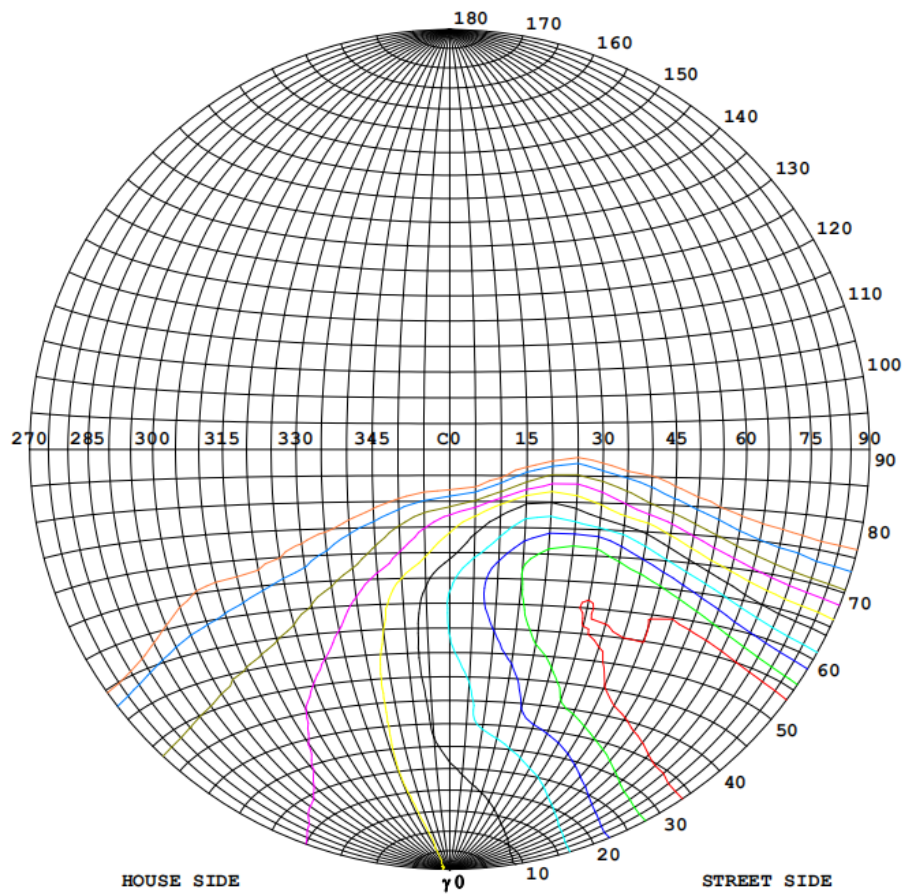
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Luminous Intensity Distribution Data

Tool_View EL-SL18LA 160W CLASS I T3V5 3000K.IES																																	
Keywords				Candela										2D										3D									
Vertical Angles	Horizontal Angles		Multipliers=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	110	115	120							
24	7106.000	7160.200	7146.900	7066.100	6977.300	6834.600	6662.300	6450.500	6272.300	6086.300	5887.800	5731.400	5575.700	5432.000	5286.200	5155.800	5025.800	4884.700	4721.700	4523.800	4304.900	4084.100											
25	7286.700	7353.500	7324.300	7235.200	7155.700	7023.900	6832.700	6622.600	6409.500	6210.600	6011.100	5817.200	5673.800	5522.700	5369.200	5230.500	5097.400	4934.500	4773.800	4569.100	4331.800	4097.700											
26	7471.400	7515.400	7501.700	7425.500	7312.800	7187.400	7010.200	6802.700	6598.700	6382.200	6116.300	5920.400	5773.100	5612.900	5455.900	5302.000	5159.500	4997.400	4839.000	4607.600	4363.400	4111.300											
27	7622.900	7676.300	7669.000	7591.800	7508.400	7380.100	7176.000	6959.800	6729.200	6469.800	6240.700	6015.500	5868.500	5708.900	5542.200	5384.100	5226.400	5057.000	4888.200	4650.500	4386.800	4119.400											
28	7807.400	7851.400	7839.300	7769.400	7695.400	7550.900	7339.600	7134.400	6875.100	6614.200	6363.900	6115.200	5967.500	5795.500	5622.000	5457.900	5299.300	5125.400	4946.200	4696.000	4424.400	4128.100											
29	7984.800	8030.900	7980.200	7922.900	7869.000	7725.000	7495.000	7304.100	7036.900	6761.600	6489.700	6238.400	6065.500	5877.800	5715.200	5538.800	5373.700	5198.200	5009.900	4734.900	4441.600	4126.200											
30	8156.600	8192.000	8143.800	8090.200	8025.000	7873.700	7666.800	7455.700	7191.900	6927.100	6631.900	6369.100	6179.700	5984.500	5812.700	5610.700	5446.300	5274.300	5061.400	4783.500	4472.700	4124.100											
31	8331.400	8374.500	8318.500	8249.000	8197.400	8031.400	7832.000	7615.600	7335.500	7097.100	6786.400	6511.100	6313.700	6094.400	5901.900	5710.300	5533.400	5350.200	5135.400	4827.100	4487.500	4121.100											
32	8483.900	8533.400	8495.000	8393.700	8350.900	8180.400	7968.000	7762.200	7508.100	7254.000	6952.400	6667.800	6454.100	6219.900	6016.000	5816.100	5626.200	5427.700	5198.500	4856.600	4500.000	4111.800											
33	8643.800	8666.900	8646.500	8549.100	8510.800	8328.300	8139.800	7902.800	7664.000	7407.500	7129.300	6825.800	6593.800	6366.400	6136.800	5947.500	5724.700	5507.300	5258.100	4890.400	4494.300	4128.000											
34	8797.800	8821.700	8813.900	8702.600	8648.900	8493.000	8307.900	8079.800	7830.300	7586.000	7296.400	6981.500	6746.500	6525.000	6295.700	6074.100	5836.500	5591.900	5287.400	4912.800	4496.400	4119.700											
35	8912.200	8952.900	8948.400	8849.700	8807.100	8659.900	8464.000	8214.600	7964.100	7742.000	7464.300	7152.700	6899.000	6669.600	6429.800	6195.200	5936.700	5657.600	5325.200	4921.500	4488.000	4113.700											
36	9039.300	9081.400	9058.800	8964.800	8940.600	8788.900	8591.100	8385.200	8125.500	7881.300	7616.800	7311.900	7037.800	6827.700	6573.600	6300.300	5997.600	5696.700	5337.700	4937.400	4487.400	4117.700											
37	9163.200	9190.200	9154.300	9093.000	9053.800	8914.600	8723.000	8531.900	8283.600	8027.700	7762.400	7455.100	7200.900	6967.000	6681.000	6347.700	6046.300	5714.900	5364.200	4936.400	4484.500	4099.900											
38	9248.500	9281.600	9252.300	9178.400	9152.300	9028.300	8859.000	8661.200	8439.300	8161.800	7908.800	7612.100	7369.400	7084.600	6746.100	6401.400	6063.300	5720.300	5367.500	4957.400	4501.500	4097.500											
39	9298.900	9332.800	9311.600	9249.400	9231.600	9132.900	8955.500	8810.600	8573.300	8312.500	8052.000	7760.700	7535.700	7186.600	6810.000	6419.900	6068.500	5713.500	5371.700	4968.000	4509.200	4083.900											
40	9369.800	9366.500	9379.100	9302.600	9266.100	9184.300	9044.500	8907.300	8694.800	8469.200	8182.100	7894.300	7669.900	7250.500	6839.100	6419.900	6070.700	5739.500	5393.700	4977.400	4519.800	4075.300											
41	9403.300	9439.800	9392.100	9329.900	9286.400	9240.400	9092.600	9001.000	8808.200	8605.400	8294.200	8045.800	7784.300	7324.300	6875.900	6451.700	6096.400	5771.100	5412.500	5002.800	4513.600	4076.900											
42	9438.400	9497.100	9431.200	9357.000	9296.700	9261.300	9126.600	9037.900	8921.800	8723.900	8431.100	8132.300	7843.200	7392.400	6912.600	6495.400	6116.600	5786.100	5413.200	5011.100	4514.600	4069.900											
43	9468.800	9565.600	9467.000	9367.600	9316.700	9237.600	9117.500	9074.900	8987.100	8833.600	8543.000	8209.700	7848.100	7440.500	6963.500	6533.000	6142.000	5813.400	5442.400	5038.100	4516.100	4073.300											
44	9540.500	9586.900	9522.200	9399.900	9312.100	9203.300	9134.300	9072.200	9052.600	8916.200	8637.200	8262.700	7881.200	7507.500	7003.200	6561.800	6183.000	5834.800	5466.500	5059.600	4527.800	4080.300											
45	9598.800	9634.500	9562.300	9410.000	9334.500	9198.100	9101.900	9065.500	9071.100	8972.100	8722.200	8301.300	7954.600	7591.600	7058.300	6608.500	6198.100	5884.300	5520.500	5082.200	4536.400	4066.500											
46	9636.600	9667.200	9600.400	9471.400	9362.600	9183.800	9053.700	9060.700	9062.600	8996.300	8770.200	8348.600	8025.700	7650.500	7157.300	6666.100	6247.800	5921.800	5568.600	5104.400	4542.100	4067.200											
47	9683.300	9720.800	9640.200	9509.600	9361.200	9217.800	9047.900	9024.800	9019.500	8993.400	8826.500	8392.200	8062.500	7731.300	7225.800	6734.200	6298.200	5977.600	5611.000	5106.200	4540.600	4048.900											
48	9651.500	9722.400	9688.300	9568.000	9412.800	9237.200	9054.400	9004.300	8979.800	8961.900	8865.600	8475.000	8163.400	7788.800	7304.800	6794.900	6362.400	6015.600	5645.700	5118.500	4542.400	4038.700											
49	9637.700	9696.300	9684.100	9575.400	9449.700	9277.700	9076.700	8989.500	8944.900	8962.300	8877.400	8866.200	8226.800	7876.900	7425.700	6895.200	6430.800	6061.200	5691.500	5140.000	4536.100	4022.100											
50	9530.500	9609.300	9614.500	9558.000	9473.000	9329.600	9101.300	8992.000	8901.900	8919.600	8892.400	8860.000	8306.000	7960.000	7516.200	6987.600	6499.200	6103.400	5741.400	5150.100	4516.200	4000.100											
51	9375.300	9451.800	9466.000	9497.700	9465.000	9346.500	9133.600	9025.000	8855.000	8863.600	8877.500	8878.700	8378.700	8068.700	7639.600	7089.500	6582.000	6170.800	5772.100	5156.300	4530.700	3978.600											
52	9148.000	9200.000	9315.000	9364.100	9390.800	9352.900	9182.700	9016.000	8817.700	8842.500	8858.500	8711.800	8482.400	8144.600	7751.600	7182.700	6609.400	6232.600	5809.400	5142.900	4507.200	3943.800											
53	8870.000	8940.000	9043.700	9136.900	9262.100	9295.400	9228.200	9035.300	8844.900	8784.300	8855.900	8761.300	8560.900	8235.800	7851.600	7267.800	6698.500	6287.400	5817.200	5136.600	4493.400	3924.400											
54	8531.700	8580.400	8679.200	8866.600	9040.800	9185.100	9195.000	9054.800	8894.400	8773.900	8793.300	8802.700	8636.400	8331.900	7929.500	7331.900	6762.700	6341.600	5853.000	5156.200	4484.500	3907.600											
55	8142.900	8194.200	8290.900	8528.500	8768.600	9019.300	9128.800	9061.400	8885.300	8744.100	8753.900	8809.400	8721.000	8405.300	8000.800	7382.800	6832.000	6374.900	5864.500	5142.100	4459.700	3879.700											
56	7749.400	7795.600	7922.300	8147.000	8449.700	8774.000	8985.400	9049.900	8923.600	8745.300	8709.900	8799.900	8736.300	8422.400	8000.800	7451.700	6891.200	6374.900	5864.500	5142.100	4459.700	3879.700											



STREETLIGHT ISOCANDELA DIAGRAM

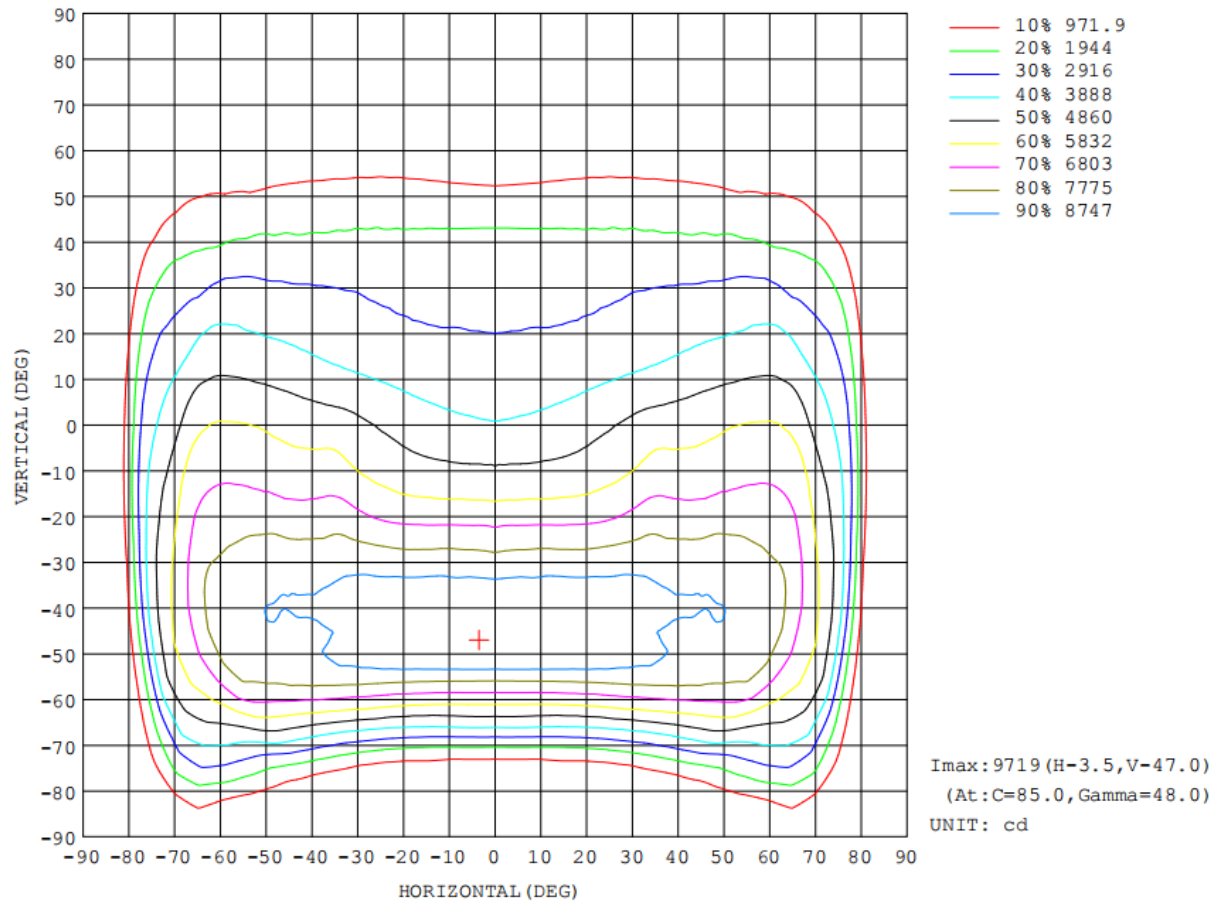


Classification:

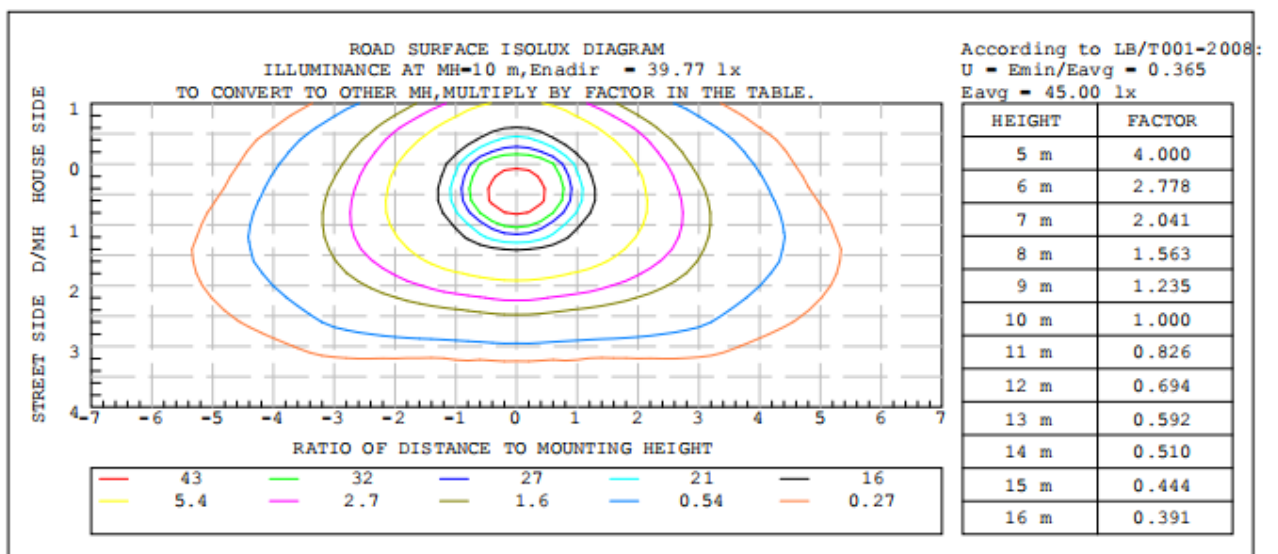
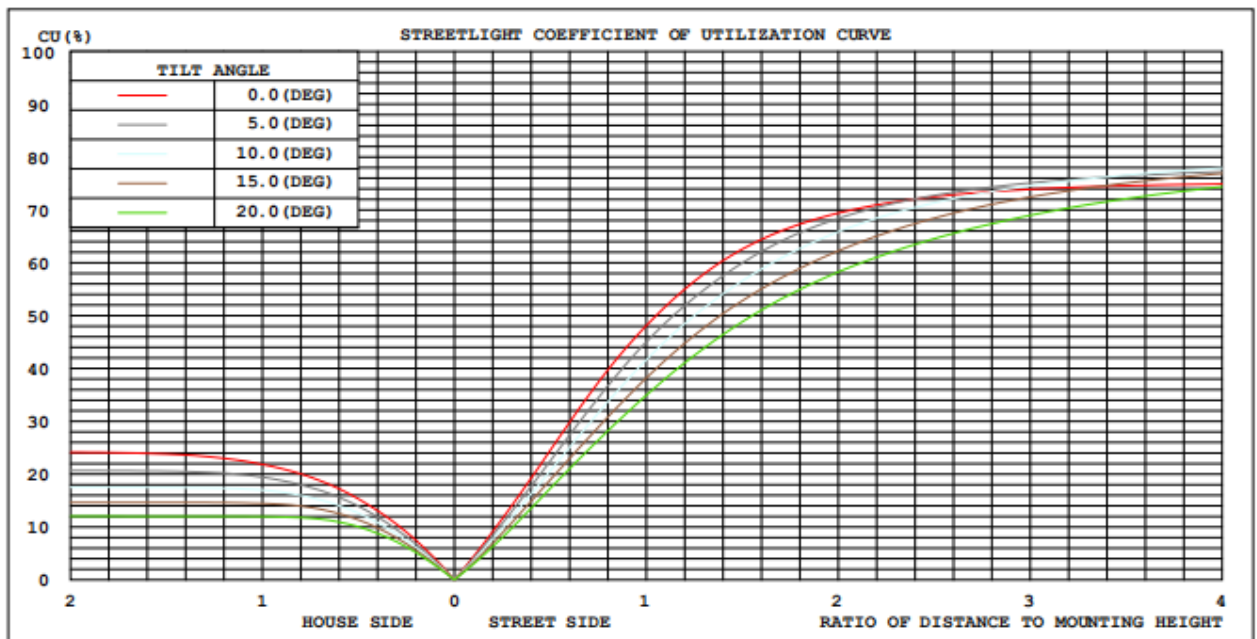
IES:Type III - Very Short
 CIE:Average - Short
 IES:None cut-off
 CIE:Non-cut-off
 Max.At80:212.7cd/klm
 Max.At90:0cd/klm
 Max.80-90:212.7cd/klm
 NRB 5101:Semi limited[27.5%]

ISOCANDELA DIAGRAM	
UNIT	cd
I _{max} =100%	9722
90%	8750
80%	7778
70%	6806
60%	5833
50%	4861
40%	3889
30%	2917
20%	1944
10%	972
5%	486

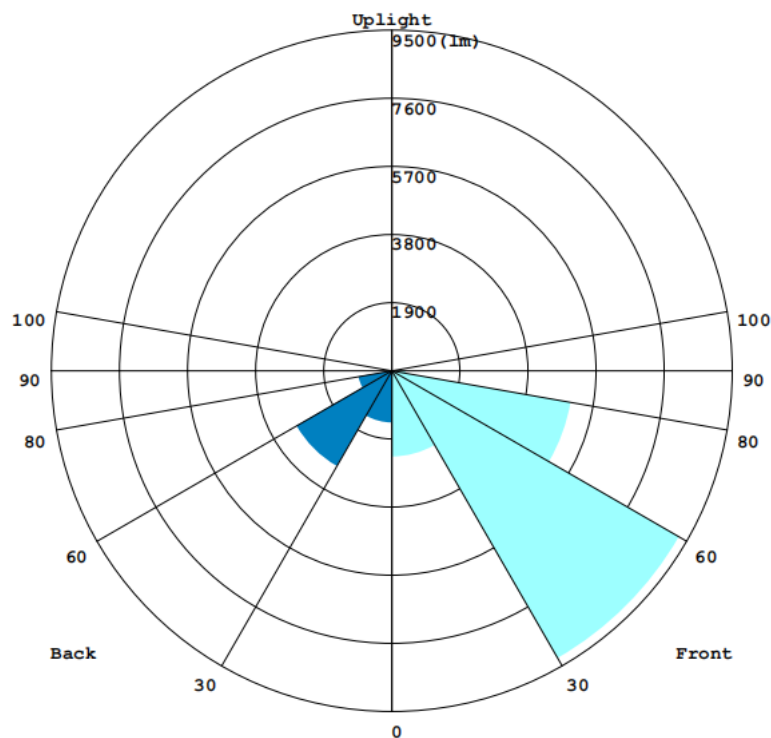
ISOCANDELA DIAGRAM



COEFFICIENT OF UTILIZATION CURVE AND ISOLUX DIAGRAM



LCS REPORT



IESNA Luminaire Flux Distribution Table:

Zone	Lumens	Luminaire %
FL - Front-Low(0-30)	2391.4	10.6
FM - Front-Medium(30-60)	9251.7	41.0
FH - Front-High(60-80)	5068.8	22.5
FVH - Front-Very High(80-90)	392.23	1.7
Total Forward Light	17104	75.8

BL - Back-Low(0-30)	1443.3	6.4
BM - Back-Medium(30-60)	3068.9	13.6
BH - Back-High(60-80)	941.61	4.2
BVH - Back-Very High(80-90)	15.755	0.1
Total Back Light	5469.6	24.2

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	B3-U0-G3
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Zone	Downward Lumens	Upward Lumens	Total Lumens
House Side	5469.6	0	5469.6
Street Side	17104	0	17104

Photo



Overview



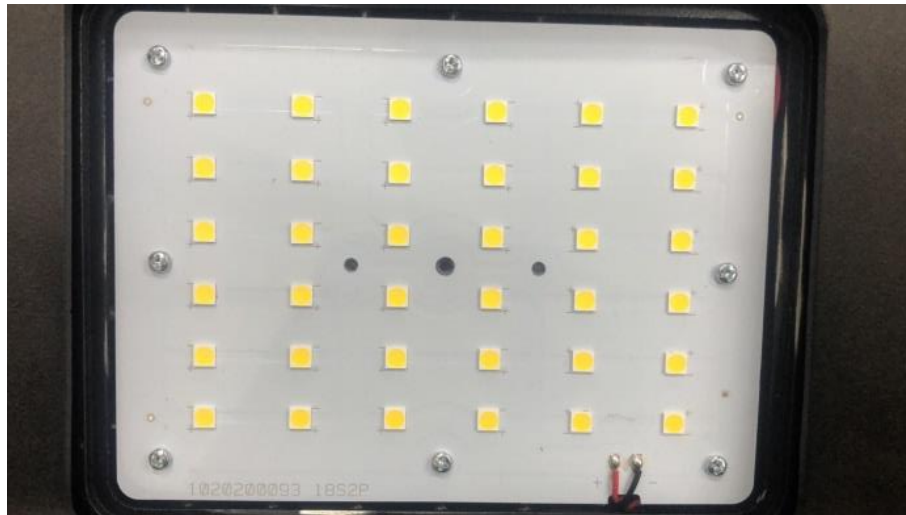
Back-side



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

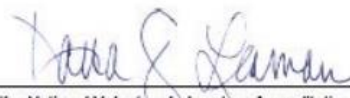
*is accredited by the National Voluntary Laboratory Accreditation Program for specific services,
listed on the Scope of Accreditation, for:*

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