



## Report of Test LLI-21208-13

LED Roadway Lighting - Roadway luminaire. Product ID: "NXT-48M-0-X-3LM-7-XX-4-XX-X-XX-0424"

Grey cast aluminum housing with fins and clear flat glass lens.

48 LEDs in two square arrays with clear plastic sheets of individual lenses.

One LED Roadway LED driver. Model: J150UNv3 set to 700ma.

Operating at 120v AC and 60 Hz.

With black plastic back light shield.



### Performance Summary

Total Light Output	7828 lm	Min Power Factor	0.93 @ 240 V
Luminaire Power	103.8 W	Max THD(i)*	6.2 % @ 240 V
Luminous Efficacy	75.4 lm/W	0-90° Zonal Flux %	100.0 %
CCT	3180 K	80-90° Zonal Flux %	0.6 %
CIE(x,y) 1931	(0.421, 0.392)	BUG Rating*	B1-U0-G1
CRI	74	Street Classification*	Type III Short

This report contains data that are not covered by the NVLAP accreditation. Data marked with \* are not covered.

**Prepared for : LED Roadway Lighting Ltd, 84 Chain Lake Drive, Halifax. NS Canada**



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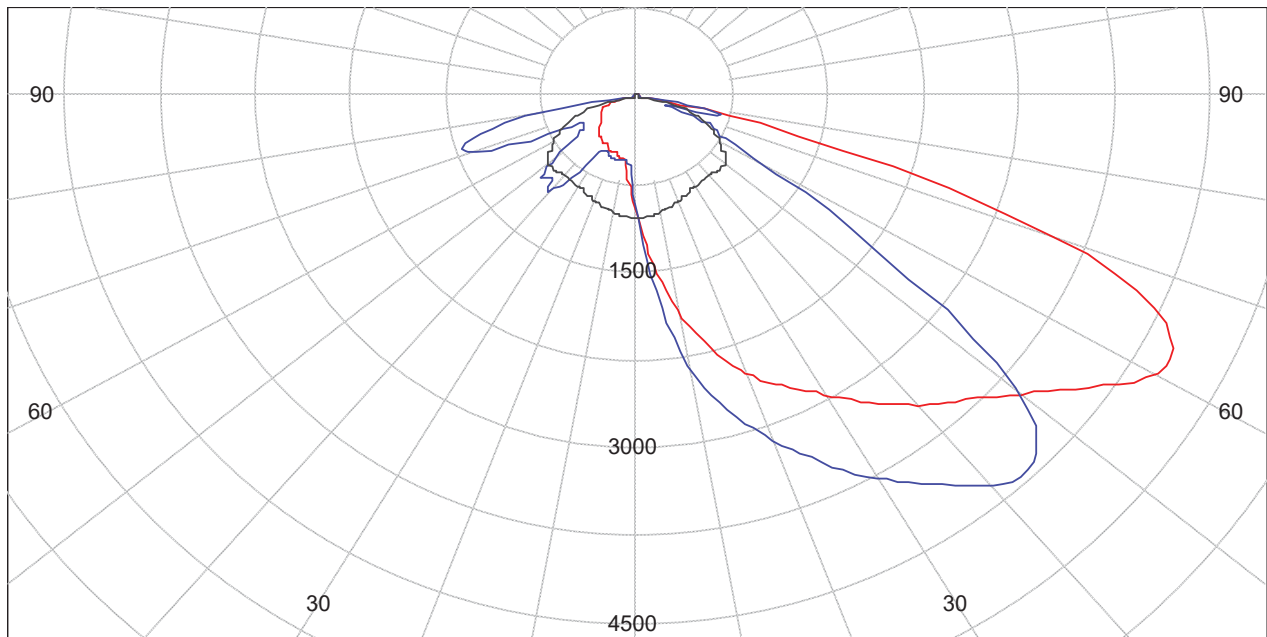
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### Polar Light Distribution Curves



House side / L270

L90 / 270 - Black, Plane of maximum - Red, L0 / 180 - Blue (cd)

Street side / L90

### Percentage Outputs

	Upward	Downward	Total
Street Side	0.0 %	83.2 %	83.2 %
House Side	0.0 %	16.8 %	16.8 %
	0.0 %	100.0 %	100.0 %

Report data based on absolute values as measured.

Signed:

*Ryder Tunney*  
Ryder Tunney  
Authorized Signatory

Date of test  
Date of report

25-Aug-2021  
26-Aug-2021

Page 3 of 16 **RT**



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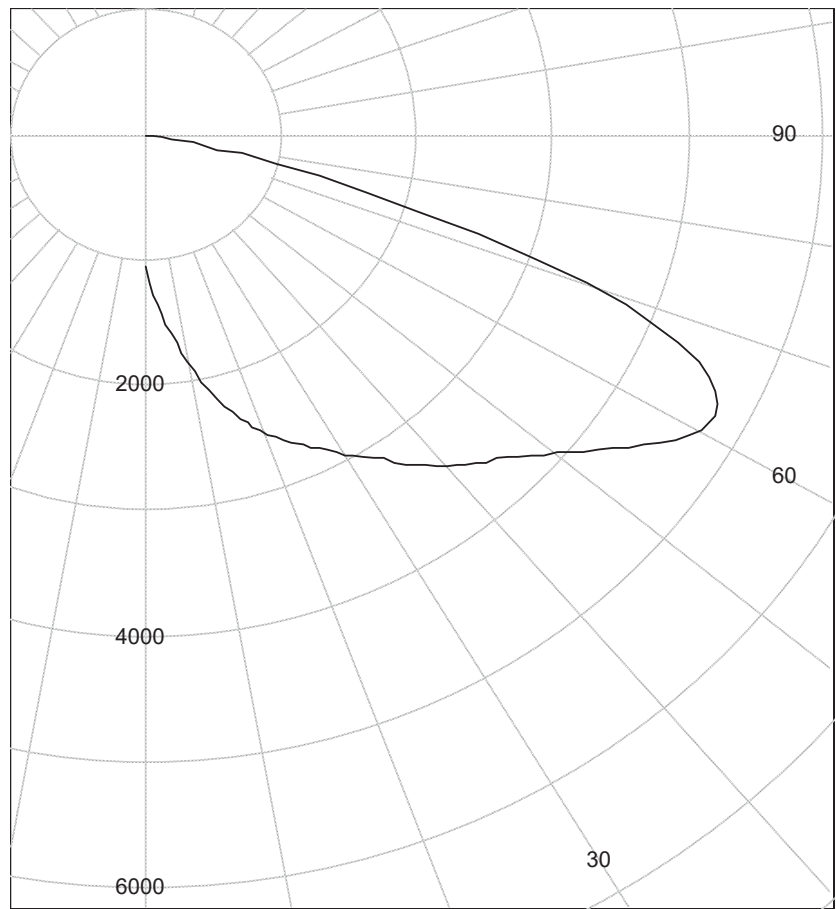
Operating at 120v AC and 60 Hz.

With black plastic back light shield.

Intensity in principal plane  
(based on overall max intensity)

Vertical Angle (°)	Intensity (cd)
0.0	1038.7
10.0	1850.6
20.0	2515.2
30.0	2941.0
35.0	3190.1
40.0	3445.7
45.0	3660.4
47.5	3791.6
50.0	3952.4
52.5	4138.3
55.0	4338.7
57.5	4551.6
60.0	4727.1
62.5	4747.9
65.0	4586.3
67.5	4164.4
70.0	3463.9
72.5	2339.2
75.0	1315.9
77.5	639.4
80.0	208.9
82.5	48.6
85.0	10.7
87.5	3.1
90.0	0.0
92.5	0.0
95.0	0.0
97.5	0.0
100.0	0.0
102.5	0.0
105.0	0.0
120.0	0.0
135.0	0.0
150.0	0.0
165.0	0.0
180.0	0.0

### Principal Vertical Plane



Plane of maximum intensity (cd)

House side max intensity

1443.2 cd @ (180.0°, 71.5°)

Street side max intensity

4758.9 cd @ (50.0°, 61.5°)

Coordinates expressed in the C Type coordinate system

Data for the two symmetric halves of the luminaire has been averaged.





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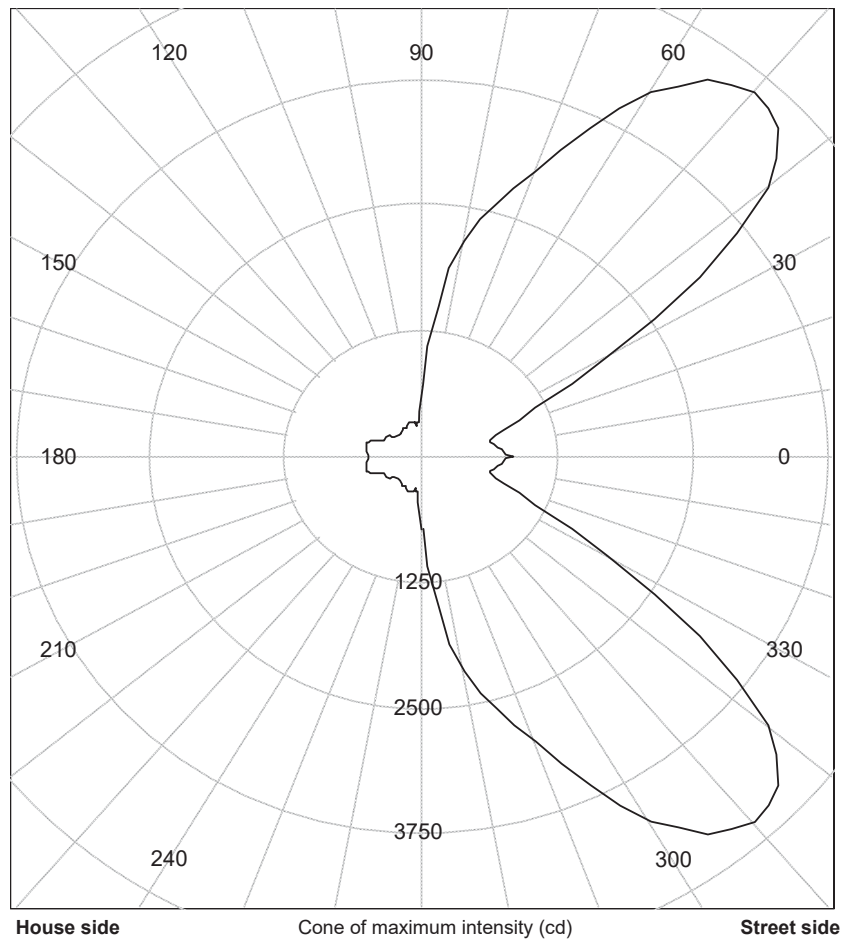
Operating at 120v AC and 60 Hz.

With black plastic back light shield.

Intensity in principal cone  
(based on overall max intensity)

Lateral Plane (°)	(V61.5) (cd)
0	834.7
15	635.1
30	1963.1
40	4155.3
45	4635.9
50	4758.9
55	4588.2
60	4195.2
65	3630.7
70	3024.2
75	2603.3
80	2191.6
85	1504.0
90	724.2
95	347.7
100	329.0
105	349.6
110	368.8
115	353.4
120	326.7
125	316.6
130	316.3
135	305.9
140	311.4
150	371.6
165	524.0
180	496.5

### Principal Conical Surface



House side max intensity

1443.2 cd @ (180.0°, 71.5°)

Street side max intensity

4758.9 cd @ (50.0°, 61.5°)

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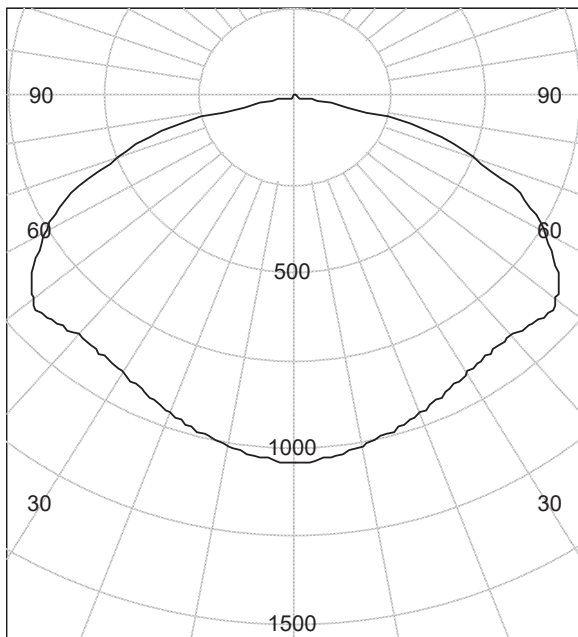
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**Polar curve through L90 / L270**

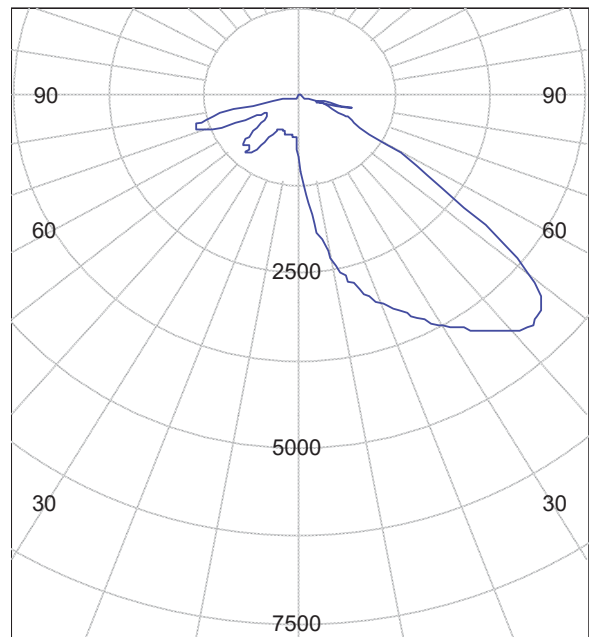


(L90)

(cd)

(L270)

**Polar curve through L0 / L180**



House side (L180)

(cd)

Street side (L0)



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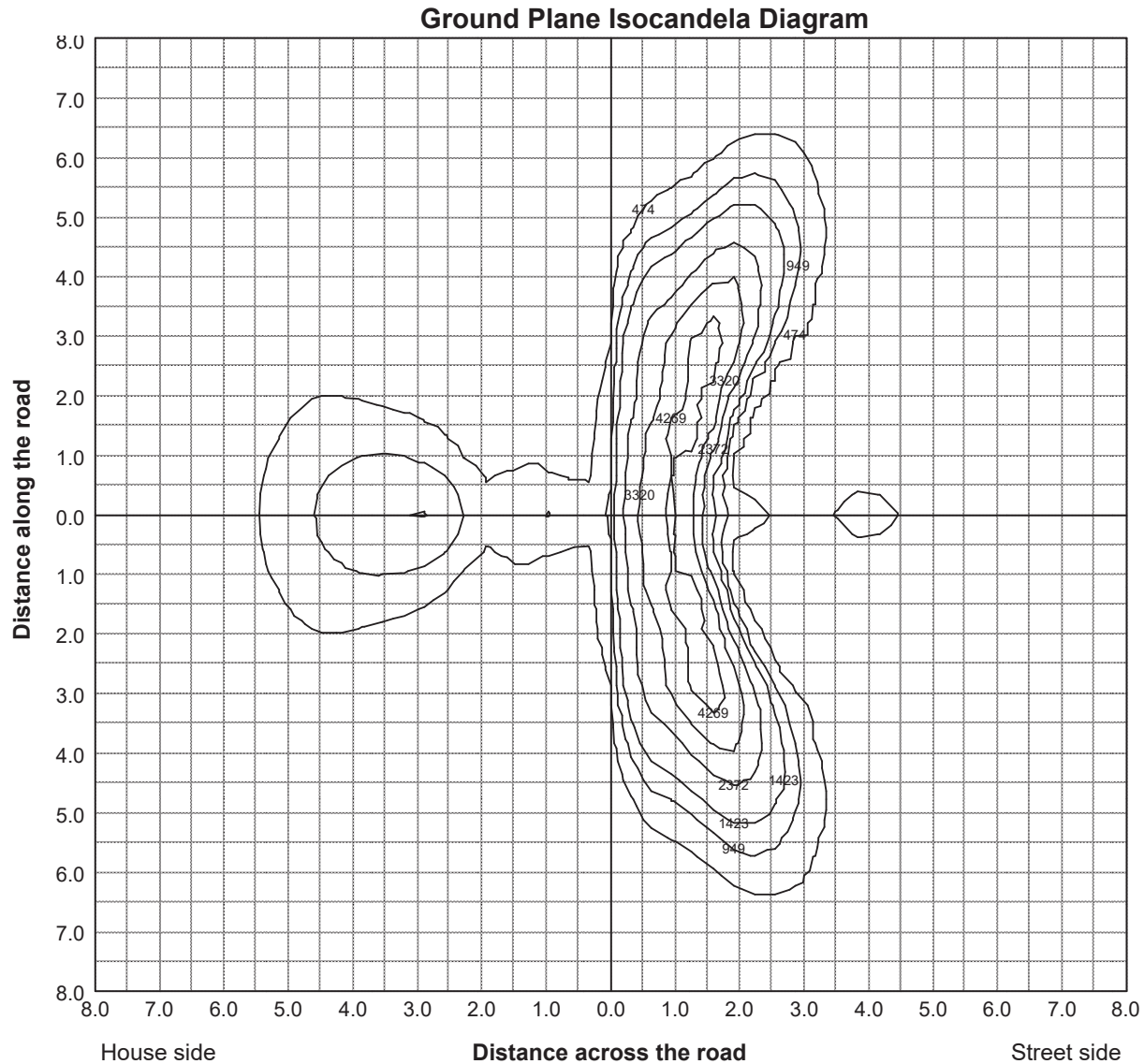
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The isocandela contour units are expressed as cd

Upstream and downstream sides have been averaged.



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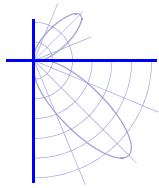
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Intensity data (cd)									
Vertical	L-Plane								
	L0	L15	L30	L40	L45	L50	L55	L60	L65
0.0	1039	1039	1039	1039	1039	1039	1039	1039	1039
10.0	2332	2279	2147	2013	1932	1851	1749	1653	1545
20.0	3119	3044	2897	2727	2622	2515	2376	2221	2029
30.0	3766	3696	3492	3232	3085	2941	2772	2613	2442
35.0	4041	3993	3804	3535	3356	3190	3021	2872	2672
40.0	4344	4304	4104	3771	3617	3446	3221	3032	2833
45.0	4411	4373	4268	4004	3836	3660	3442	3199	2983
47.5	4265	4282	4317	4101	3962	3792	3579	3343	3103
50.0	3873	4035	4312	4194	4096	3952	3753	3514	3227
52.5	3213	3522	4210	4280	4231	4138	3958	3709	3352
55.0	2283	2780	4001	4333	4378	4339	4186	3929	3473
57.5	1684	1810	3528	4358	4517	4552	4422	4102	3562
60.0	1050	1005	2689	4314	4622	4727	4564	4189	3620
62.5	758	481	1455	3923	4584	4748	4577	4191	3640
65.0	668	337	607	2859	4099	4586	4553	4215	3694
67.5	508	270	327	1463	2998	4164	4541	4316	3864
70.0	304	221	324	578	1675	3464	4407	4578	4209
72.5	241	169	286	408	798	2339	3986	4719	4569
75.0	647	120	265	329	465	1316	3008	4173	4294
77.5	464	79	206	369	380	639	1544	2652	3307
80.0	222	45	66	168	241	209	533	1048	1421
82.5	46	23	30	47	49	49	66	118	193
85.0	15	9	10	10	10	11	11	11	11
87.5	2	3	3	3	3	3	3	4	4
90.0	0	0	0	0	0	0	0	0	0
92.5	0	0	0	0	0	0	0	0	0
95.0	0	0	0	0	0	0	0	0	0
97.5	0	0	0	0	0	0	0	0	0
100.0	0	0	0	0	0	0	0	0	0
102.5	0	0	0	0	0	0	0	0	0
105.0	0	0	0	0	0	0	0	0	0
120.0	0	0	0	0	0	0	0	0	0
135.0	0	0	0	0	0	0	0	0	0
150.0	0	0	0	0	0	0	0	0	0
165.0	0	0	0	0	0	0	0	0	0
180.0	0	0	0	0	0	0	0	0	0





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Operating at 120v AC and 60 Hz.

With black plastic back light shield.

Intensity data (cd)									
Vertical	L-Plane								
	L70	L75	L80	L85	L90	L95	L100	L105	L110
0.0	1039	1039	1039	1039	1039	1039	1039	1039	1039
10.0	1436	1324	1216	1111	1006	913	827	751	684
20.0	1822	1604	1383	1167	957	781	637	548	515
30.0	2203	1891	1556	1222	904	652	505	472	468
35.0	2397	2056	1667	1267	890	603	472	456	453
40.0	2562	2232	1802	1333	883	556	450	439	435
45.0	2754	2437	1984	1438	898	527	429	414	410
47.5	2853	2540	2084	1495	906	519	424	405	396
50.0	2951	2636	2165	1531	895	494	401	390	385
52.5	3043	2688	2204	1533	871	466	381	372	370
55.0	3088	2680	2198	1517	834	432	365	358	360
57.5	3065	2639	2175	1494	790	396	348	349	353
60.0	3033	2606	2171	1491	751	365	336	346	358
62.5	3031	2610	2220	1517	703	335	324	352	374
65.0	3100	2688	2330	1559	645	306	311	358	379
67.5	3305	2822	2448	1590	572	275	288	348	369
70.0	3578	2955	2546	1606	493	239	250	314	332
72.5	3763	2957	2497	1500	417	199	204	235	254
75.0	3377	2413	1962	1225	311	152	150	164	193
77.5	2585	1645	1245	745	165	97	98	116	145
80.0	1297	701	420	268	62	50	56	67	78
82.5	214	122	69	93	24	18	23	27	29
85.0	10	9	8	7	7	7	6	6	7
87.5	4	4	4	3	3	3	3	2	3
90.0	0	0	0	0	0	0	0	0	0
92.5	0	0	0	0	0	0	0	0	0
95.0	0	0	0	0	0	0	0	0	0
97.5	0	0	0	0	0	0	0	0	0
100.0	0	0	0	0	0	0	0	0	0
102.5	0	0	0	0	0	0	0	0	0
105.0	0	0	0	0	0	0	0	0	0
120.0	0	0	0	0	0	0	0	0	0
135.0	0	0	0	0	0	0	0	0	0
150.0	0	0	0	0	0	0	0	0	0
165.0	0	0	0	0	0	0	0	0	0
180.0	0	0	0	0	0	0	0	0	0



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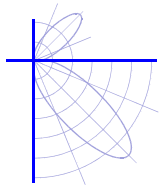
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Intensity data (cd)									
Vertical	L-Plane								
	L115	L120	L125	L130	L135	L140	L150	L165	L180
0.0	1039	1039	1039	1039	1039	1039	1039	1039	1039
10.0	630	593	571	557	552	550	550	553	557
20.0	510	510	513	519	528	534	542	550	557
30.0	470	476	479	479	481	484	489	512	534
35.0	455	457	457	461	467	472	503	682	786
40.0	435	433	436	444	459	495	666	953	1059
45.0	411	406	405	415	445	504	641	871	985
47.5	395	394	388	396	419	456	584	946	1008
50.0	380	379	373	376	392	419	584	950	870
52.5	362	361	360	356	368	392	604	819	666
55.0	347	341	342	339	349	372	560	690	540
57.5	336	326	324	328	334	350	486	610	505
60.0	343	322	318	322	317	324	410	561	494
62.5	360	332	315	310	297	303	351	499	529
65.0	376	345	310	291	276	287	321	532	767
67.5	377	349	334	278	259	280	325	737	1167
70.0	344	324	351	277	248	273	391	972	1405
72.5	281	261	273	242	220	254	429	1063	1425
75.0	208	190	189	174	173	208	400	987	1260
77.5	136	127	119	119	124	154	327	796	995
80.0	77	76	74	75	81	103	189	354	361
82.5	31	32	33	34	36	39	54	68	70
85.0	7	6	6	6	6	6	7	9	2
87.5	2	2	2	2	2	2	1	1	0
90.0	0	0	0	0	0	0	0	0	0
92.5	0	0	0	0	0	0	0	0	0
95.0	0	0	0	0	0	0	0	0	0
97.5	0	0	0	0	0	0	0	0	0
100.0	0	0	0	0	0	0	0	0	0
102.5	0	0	0	0	0	0	0	0	0
105.0	0	0	0	0	0	0	0	0	0
120.0	0	0	0	0	0	0	0	0	0
135.0	0	0	0	0	0	0	0	0	0
150.0	0	0	0	0	0	0	0	0	0
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180.0	0	0	0	0	0	0	0	0	0



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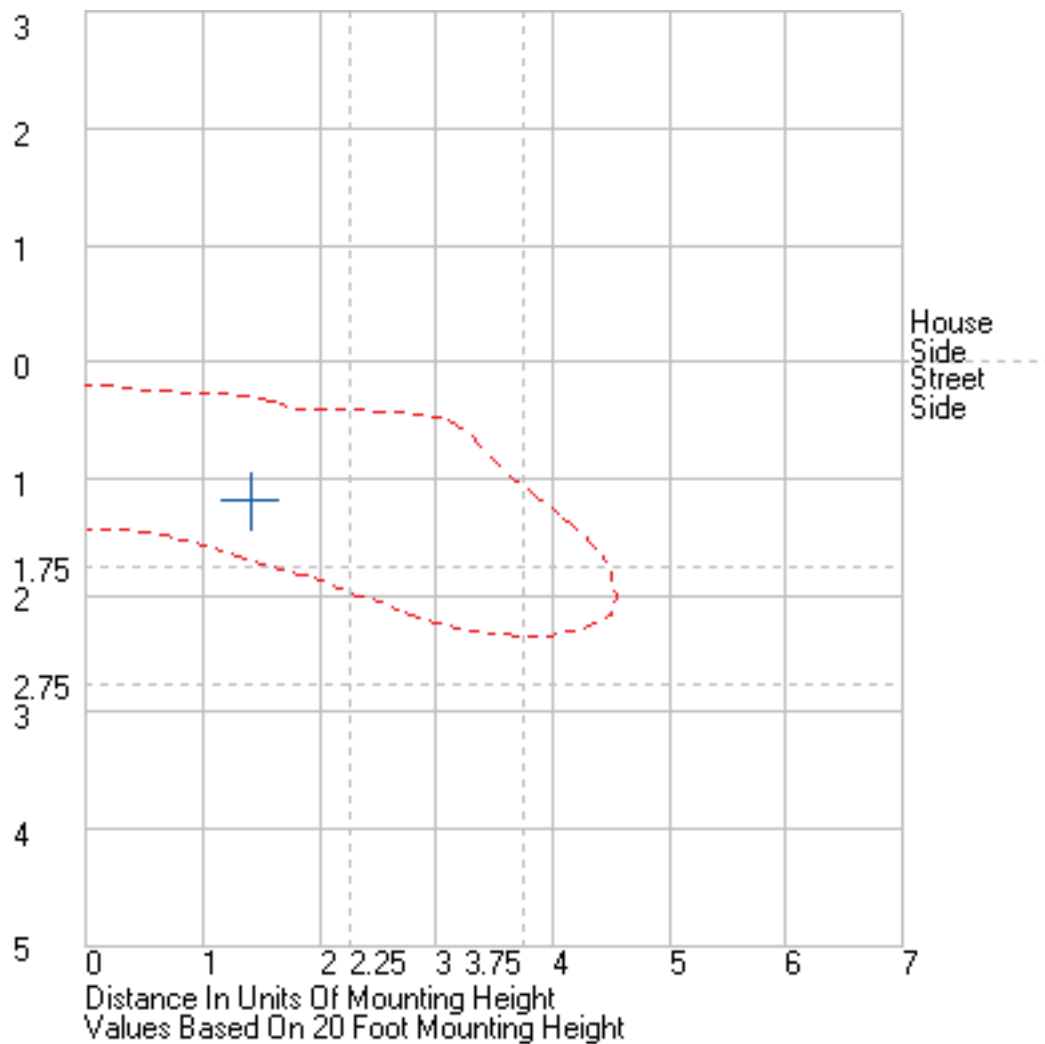
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### LM-79-08 Performance Data

<b>Spectral</b>	CIE 1931 (x, y) <sup>(1)</sup>	(0.421, 0.392)
	CIE 1976 (u', v') <sup>(1)</sup>	(0.246, 0.514)
	Correlated Color Temperature (CCT) <sup>(1)</sup>	3180 K
	Spatial Δ (u', v') Uniformity <sup>(2)</sup>	0.0170
	Color Rendering Index (Ra) <sup>(1)</sup>	73.7
	Special CRI 9 (R <sub>9</sub> ) <sup>(1),(3)</sup>	-21.6
	Distance from Planckian Locus (Duv) <sup>(1),(3)</sup>	-2.68E-03
	Scotopic/Photopic Ratio <sup>(1),(3)</sup>	1.27

<b>Electrical</b>	Voltage	120.0 V	(Setpoint 1)
	Frequency	60.0 Hz	
	Current	0.873 A	
	Power	104 W	
	Power Factor	0.99	
	Current THD	2.3 %	
	Voltage	240.0 V	(Setpoint 2)
	Frequency	60.0 Hz	
	Current	0.458 A	
	Power	102 W	
	Power Factor	0.93	
	Current THD	6.2 %	

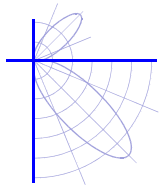
Performance data in accordance with IESNA LM-79-08. Spectral calculations are for a CIE 2° observer

Photometric and spectral values were measured at Setpoint 1

(1) Value is computed from the weighted average of the spatial measurements

(2) Value is the maximum deviation of the spatial u' and v' measurements from the weighted average

(3) Quantity is in addition to the scope of IESNA LM-79-08



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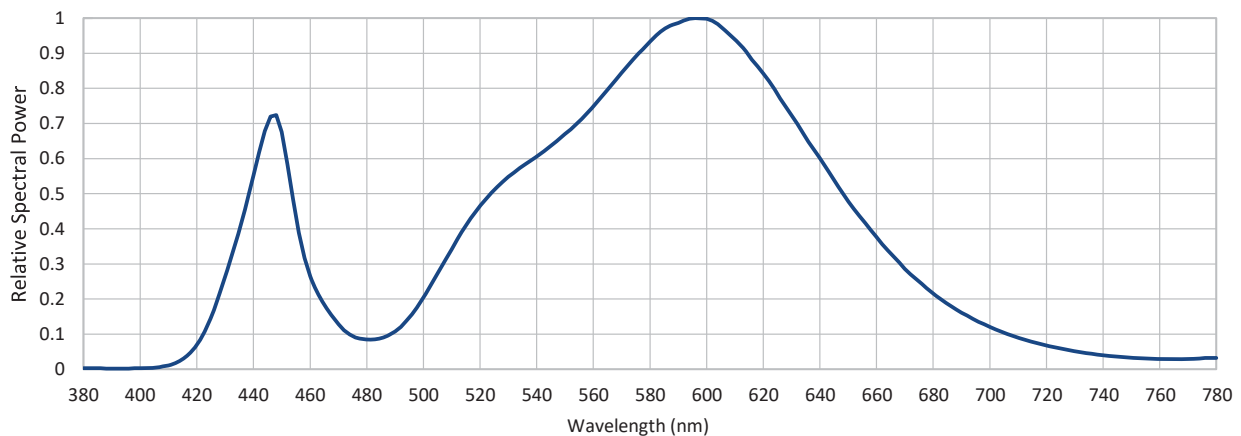
With black plastic back light shield.

### LM-79-08 Performance Data

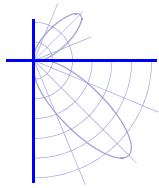
#### Relative spectral power distribution

(Relative to peak = 1, weighted average of spatial measurements)

$\lambda$ (nm)	Relative Power	$\lambda$ (nm)	Relative Power	$\lambda$ (nm)	Relative Power	$\lambda$ (nm)	Relative Power	$\lambda$ (nm)	Relative Power
380	0.003	460	0.265	540	0.606	620	0.842	700	0.121
385	0.003	465	0.185	545	0.636	625	0.784	705	0.104
390	0.002	470	0.128	550	0.670	630	0.723	710	0.090
395	0.002	475	0.095	555	0.706	635	0.661	715	0.078
400	0.003	480	0.085	560	0.749	640	0.602	720	0.068
405	0.005	485	0.089	565	0.796	645	0.538	725	0.059
410	0.011	490	0.108	570	0.844	650	0.480	730	0.052
415	0.030	495	0.147	575	0.891	655	0.426	735	0.045
420	0.069	500	0.205	580	0.933	660	0.377	740	0.040
425	0.149	505	0.273	585	0.968	665	0.330	745	0.036
430	0.263	510	0.342	590	0.986	670	0.286	750	0.033
435	0.397	515	0.410	595	0.999	675	0.250	755	0.031
440	0.551	520	0.465	600	0.998	680	0.216	760	0.029
445	0.699	525	0.511	605	0.976	685	0.187	765	0.029
450	0.676	530	0.548	610	0.939	690	0.161	770	0.029
455	0.436	535	0.579	615	0.894	695	0.140	775	0.031
								780	0.032







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### LM-79-08 Performance Data

#### Spatial measurements

Vert. angle (°)	CIE 1976 (u',v') coordinates	
	Horiz. 0.0° plane	Horiz. ° plane
0.0	( 0.247, 0.516)	( 0.245, 0.513)
10.0	( 0.247, 0.517)	( 0.244, 0.503)
20.0	( 0.247, 0.518)	( 0.244, 0.501)
30.0	( 0.247, 0.519)	( 0.244, 0.502)
40.0	( 0.248, 0.521)	( 0.244, 0.508)
50.0	( 0.248, 0.522)	( 0.246, 0.520)
60.0	( 0.248, 0.526)	( 0.248, 0.531)
70.0	( 0.248, 0.528)	I <= 10% peak
80.0	I <= 10% peak	I <= 10% peak
-	-	-

#### Spatial measurements

Vert. angle (°)	CIE 1976 (u',v') coordinates	
	Horiz. 0.0° plane	Horiz. ° plane
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-

#### Test procedure

All measurements were performed in an environmentally controlled laboratory employing suitable baffling to minimize stray light. The sample was mounted in its normal operating orientation on a rotating mirror goniophotometer and operated from a stabilized supply. The photometric output was monitored and measurements were performed once stability was achieved.

The goniophotometer was used to measure the spatial distribution of both luminous intensity and, in conjunction with a spectroradiometer, spectral irradiance. The distribution locus comprises points in two or more planes (as indicated in the table above) at no more than 10° vertical intervals. The CIE (x,y) coordinates and other derived metrics (CIE (u', v'), CCT and CRI) are calculated from the weighted sum (weighted for intensity and represented solid angle) of the measured spectral irradiances.

Sample Orientation

Horizontal

Stabilization & total operation time 0.75 / 3.0 hours

#### Equipment and uncertainties

LightLab International R80A C-gamma rotating mirror goniophotometer with a test distance of 8 m.

Luminous Intensity	± 4 %	Temperature	± 1 °C
Luminous Flux	± 4 %	Luminous Efficacy	± 4.5 %
Horiz., Vert. Angles	± 0.25°		

PhotoResearch PR-670 spectroradiometer (grating with 380 - 780 nm range, 2 nm / pixel, 5 nm bandwidth, incandescent/halogen calibration source). Measured at a distance from the sample deemed >5 times the maximum observed luminous opening dimension.

CIE (x, y) coordinates	± 0.003	CCT	± 100 K
CIE (u', v') coordinates	± 0.002	CRI (Ra)	± 2
Spatial Δ (u', v') uniformity	± 0.001	Scotopic / Photopic Ratio *	± 0.02
Rel. Spectral Irradiance *	± 2 %	R9 *	± 2
Duv *	± 5E-04		

Yokogawa WT210 power meter connected in circuit to the sample electrical supply

Voltage	± 0.5 %	Frequency *	± 0.1 Hz
Current	± 0.5 %	Power	± 0.5 %
Current THD	± 3 %	Power Factor	± 0.02

This report contains data that are not covered by the NVLAP accreditation. Quantities marked with \* are not covered.

Calculator / report version 1.0.10 / 5.9 (14th Dec 2017)

Page 14 of 16 **RT**



## Test Report No. LLI-21208-13

LED Roadway Lighting - Roadway luminaire. Product ID: "NXT-48M-0-X-3LM-7-XX-4-XX-X-XX-0424"

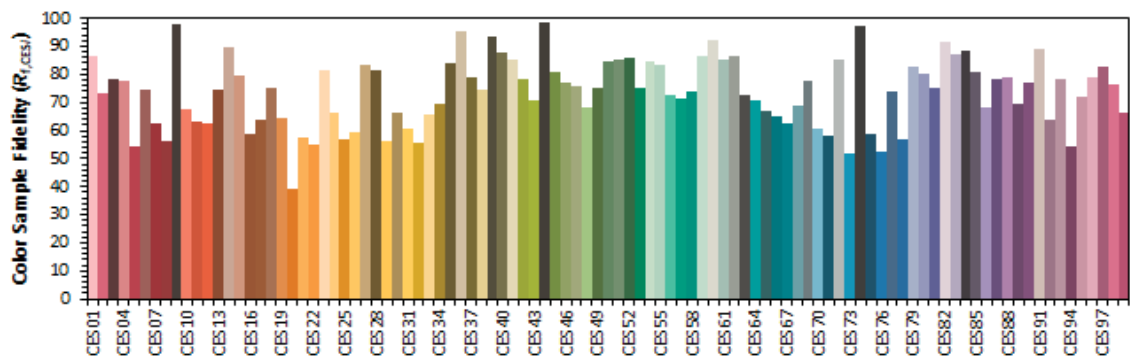
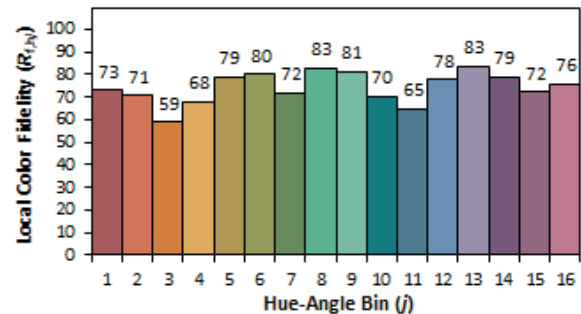
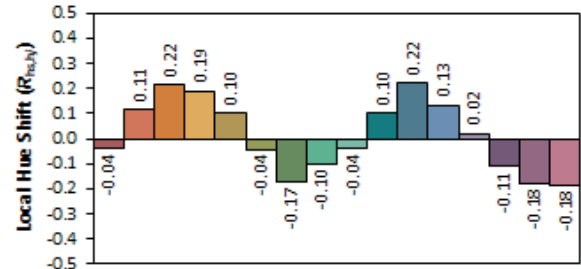
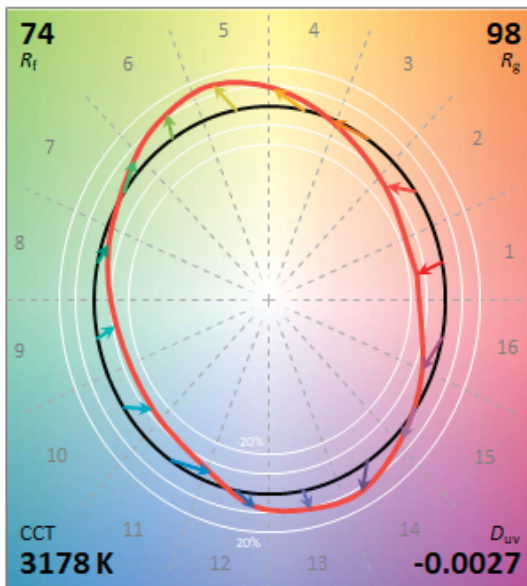
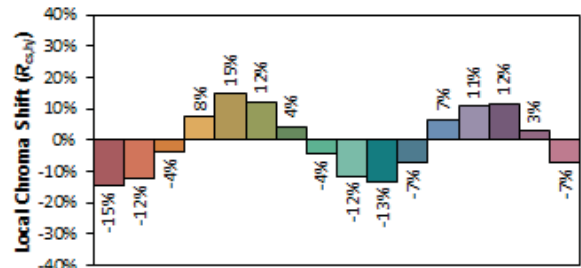
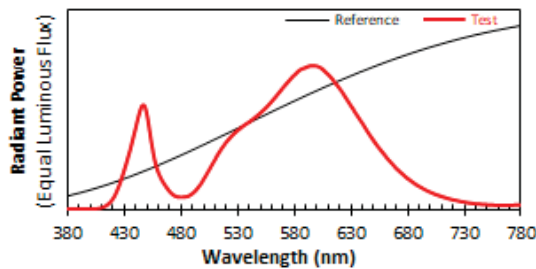
Grey cast aluminum housing with fins and clear flat glass lens.

48 LEDs in two square arrays with clear plastic sheets of individual lenses.

One LED Roadway LED driver. Model: J150UNv3 set to 700ma.

Operating at 120v AC and 60 Hz.

With black plastic back light shield.





## Test Report No. LLI-21208-13

LED Roadway Lighting - Roadway luminaire. Product ID: "NXT-48M-0-X-3LM-7-XX-4-XX-X-XX-0424"

Grey cast aluminum housing with fins and clear flat glass lens.

48 LEDs in two square arrays with clear plastic sheets of individual lenses.

One LED Roadway LED driver. Model: J150UNv3 set to 700ma.

Operating at 120v AC and 60 Hz.

With black plastic back light shield.

**Test Distance** 8.0 m  
**Test Temperature** 25.3 °C

**Notes** The laboratory has not participated in the selection of samples to be tested. All testing is performed on the understanding that the significance of the report is limited to the extent that the test sample is representative of production units.

Tested in accordance with the applicable sections of publications: IES LM-79-08 (Sec. 12), IES LM-16-93, IES LM-58-13, CIE 13.3:1995, CIE 15:2004, ANSI C78.377:2015, ANSI C82.77-10:2014.

The luminous intensity values, and other derived quantities, contained in this report are based on the absolute data, as measured.

Prorating the performance of the sample for the use of other component combinations (such as lamp / LED / Ballast / driver), or for use in different environmental conditions than that tested, may produce erroneous results.

This report is free of erasures and corrections.

Photometric intensity values are reported using the IESNA Type C coordinate system (L, V) as defined in IESNA publication LM-75.

Customer supplied information is identified in this report by enclosing it in double quotes

This report must not be used by the customer to claim product certification, approval or endorsement by NVLAP, NIST, or any agency of the Federal Government.