

Scaled data based on original data using
LM-79-08 Approved Method: Electrical and Photometric Measurements of Solid-State
Lighting Products

Test Report Prepared for

Cooper Lighting Solutions

(formerly Eaton)

Brand: NEO-RAY

Report Number: P231556

Luminaire Tested: **S123-DR-LO-30-X-0048-1-U-DD-3-W**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P231556
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P29684)
Test Lab: INNOVATION CENTER-P2
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: NEO-RAY
Catalog Number: S123-DR-LO-30-X-0048-1-U-DD-3-W
Description: DEFINE 3 LED LINEAR DIRECT RECESSED LED LUMINAIRE WITH ASYMMETRIC LENS.
Light Source: 3000K CCT, 80 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1504.3 lumens
Efficiency: N/A
Efficacy: 110.6 lumens/watt
Spacing Criteria (0/90/45): 1.33 / 1.22 / 1.46
Luminous Opening: Rectangular (W 3.92' x L: 0.22' x H: 0')
CIE Type: Direct

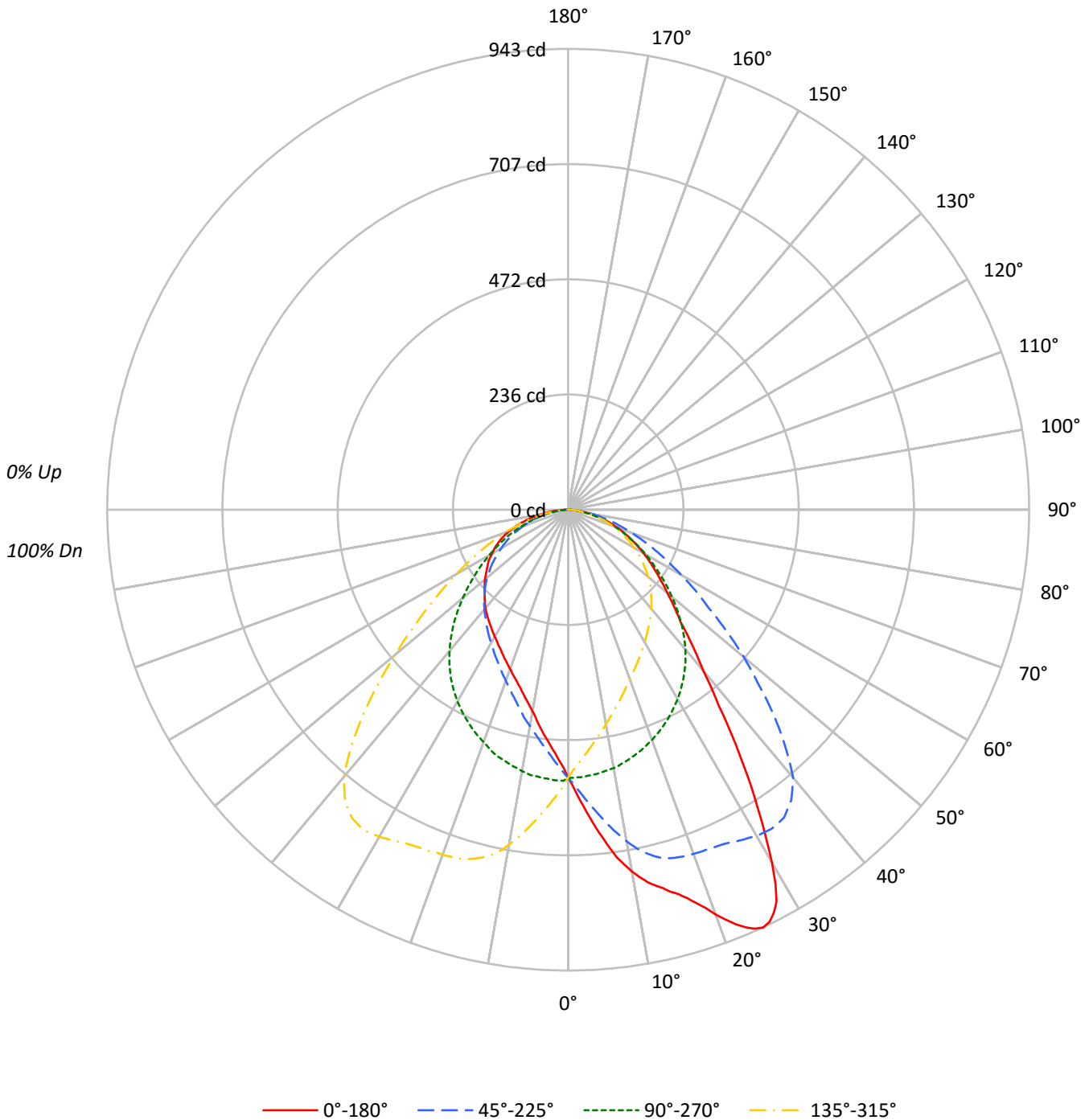
Input Watts (W): 13.6
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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Luminous Intensity Polar Plot





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COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20					20					20					20					20					
RC	80					70					50					30					10					0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	0		
RCR																										
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100					100			
1	109	105	101	97	107	103	99	96	98	95	93	95	92	90	91	89	87	85					85			
2	100	92	86	80	98	90	84	79	87	82	78	84	79	76	81	77	74	72					72			
3	92	82	74	68	89	80	73	67	77	71	66	74	69	65	72	67	64	61					61			
4	84	73	64	58	82	71	64	57	69	62	57	67	61	56	65	59	55	53					53			
5	78	65	57	50	76	64	56	50	62	55	49	60	54	49	58	53	48	46					46			
6	72	59	50	44	70	58	50	44	56	49	44	55	48	43	53	47	43	41					41			
7	67	54	45	39	65	53	45	39	51	44	39	50	43	39	49	43	38	36					36			
8	62	49	41	35	61	48	41	35	47	40	35	46	39	35	45	39	34	33					33			
9	58	45	37	32	57	45	37	32	43	36	31	42	36	31	41	35	31	29					29			
10	55	42	34	29	53	41	34	29	40	33	29	39	33	29	38	33	28	27					27			

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°	270°
0°	6748	6748	6748	6748
5°	8078	6733	5873	6816
10°	9392	6711	5238	6787
15°	10312	6637	4815	6721
20°	11541	6568	4546	6630
25°	12810	6475	4366	6540
30°	11844	6360	4266	6441
35°	9184	6204	4226	6289
40°	6900	5994	4230	6063
45°	5662	5686	4203	5770
50°	5068	5304	4252	5386
55°	4673	4896	4317	4999
60°	4381	4500	4428	4593
65°	4094	4109	4578	4220
70°	3850	3663	4635	3764
75°	3490	3195	4527	3310
80°	3090	2615	4231	2750
85°	2471	1935	3813	2146



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	53.3	3.5
10°-20°	159.8	10.6
20°-30°	254.7	16.9
30°-40°	293.3	19.5
40°-50°	267.2	17.8
50°-60°	216.6	14.4
60°-70°	153.8	10.2
70°-80°	83.4	5.5
80°-90°	22.0	1.5
90°-100°	0.0	0.0
100°-110°	0.0	0.0
110°-120°	0.0	0.0
120°-130°	0.0	0.0
130°-140°	0.0	0.0
140°-150°	0.0	0.0
150°-160°	0.0	0.0
160°-170°	0.0	0.0
170°-180°	0.0	0.0
0°-30°	467.8	31.1
0°-40°	761.2	50.6
0°-60°	1245.0	82.8
0°-90°	1504.3	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1504.3	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	548	548	548	548	548	
5°	654	545	475	552	654	66
15°	809	521	378	528	809	232
25°	943	477	322	482	943	422
35°	611	413	281	419	611	383
45°	325	327	242	332	325	258
55°	218	228	201	233	218	196
65°	141	141	157	145	141	140
75°	73	67	95	70	73	78
85°	18	14	27	15	18	21
90°	0	0	0	0	0	



TEST NUMBER: P231556

CATALOG NUMBER: S123-DR-LO-30-X-0048-1-U-DD-3-W

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	548.3	548.3	548.3	548.3	548.3	548.3	548.3	548.3	548.3	548.3	548.3
1°	566.3	562.5	560.2	550.2	548.8	538.4	534.1	530.4	528.9	531.3	538.4
2°	587.6	580.5	573.4	556.9	547.9	531.8	523.2	516.1	514.3	517.1	526.6
3°	608.5	599.0	587.6	563.5	547.9	525.6	512.4	502.4	500.0	503.4	516.1
4°	630.7	618.9	601.9	569.7	546.4	519.0	501.9	490.1	487.7	490.6	505.3
5°	653.9	639.3	616.5	576.3	545.0	510.9	492.0	477.8	475.4	478.3	494.8
6°	675.2	659.6	631.2	582.9	544.1	506.2	482.1	466.9	464.5	466.9	485.4
7°	697.5	680.5	646.4	589.1	542.2	499.1	472.6	456.0	453.2	456.5	475.9
8°	718.8	699.9	661.5	595.2	540.3	492.5	463.6	445.6	441.8	445.6	466.9
9°	735.9	716.9	674.8	600.9	538.4	485.8	454.6	435.6	429.0	435.6	457.9
10°	751.5	733.0	689.0	606.6	537.0	479.2	445.6	425.7	419.1	425.7	449.4
11°	765.7	746.8	701.8	611.8	534.6	473.1	437.1	416.7	410.1	416.2	441.8
12°	779.0	759.5	713.1	618.9	530.8	466.9	428.5	407.7	401.6	407.2	434.7
13°	788.9	769.5	722.6	622.7	528.0	459.3	420.5	399.7	393.5	399.2	425.2
14°	797.9	779.4	730.7	626.9	524.2	452.2	412.4	391.1	385.5	391.6	416.2
15°	809.3	787.5	737.8	630.7	520.9	445.6	405.3	383.6	377.9	384.0	408.2
16°	818.3	795.5	742.0	634.1	517.1	439.0	397.3	376.5	371.2	377.4	400.6
17°	831.0	803.6	744.9	636.4	513.8	432.3	389.7	369.8	364.6	370.3	393.5
18°	846.2	811.6	746.8	637.8	510.0	425.7	382.6	363.2	358.5	363.2	385.9
19°	861.3	821.6	748.6	639.3	505.3	418.6	376.0	357.0	352.8	356.6	379.3
20°	881.2	832.5	749.6	638.8	501.5	412.4	369.4	351.4	347.1	350.4	372.7
21°	898.3	844.8	750.5	636.9	496.3	405.3	363.2	345.7	341.9	344.7	366.5
22°	914.9	858.0	751.0	635.5	492.0	398.7	357.0	340.5	336.2	339.5	360.4
23°	928.6	871.3	752.0	631.7	487.3	392.1	350.9	334.8	331.5	334.3	354.2
24°	938.5	885.5	753.4	627.4	481.6	385.5	345.2	330.0	326.3	329.1	348.0
25°	943.3	897.3	754.8	621.7	476.8	379.3	339.5	325.3	321.5	323.4	342.4
26°	939.0	904.9	757.6	615.6	471.2	372.7	333.8	321.1	316.8	318.7	336.7
27°	926.2	908.2	761.0	608.5	465.5	366.0	328.6	316.8	313.0	314.4	331.5
28°	907.8	905.4	764.3	600.9	459.3	359.9	323.4	312.1	308.3	309.7	325.8
29°	875.1	895.9	767.1	592.9	453.6	353.7	318.2	306.8	304.0	305.0	320.6
30°	833.4	878.9	770.9	584.8	447.5	347.1	313.0	302.6	300.2	300.7	315.4
32.5°	719.8	806.4	774.2	562.1	430.9	331.9	300.2	291.2	290.7	290.3	303.1
35°	611.3	706.5	769.5	537.9	412.9	316.8	287.9	280.8	281.3	280.3	290.3
37.5°	506.7	603.7	749.1	515.7	394.0	301.6	276.1	271.3	272.3	270.4	278.0
40°	429.5	511.9	716.0	489.2	373.1	287.0	264.2	261.4	263.3	260.9	266.6
42.5°	375.0	436.1	657.7	464.1	350.4	272.3	251.9	251.0	252.4	250.5	254.3
45°	325.3	376.5	595.2	438.0	326.7	257.1	239.6	238.7	241.5	238.7	242.4
47.5°	293.6	330.0	527.5	413.9	302.1	242.4	227.3	227.3	232.0	226.8	229.7
50°	264.7	290.3	468.8	386.4	277.0	227.3	213.1	215.0	222.1	215.0	216.4
52.5°	240.1	259.5	408.7	358.0	252.4	211.7	199.4	203.6	211.2	203.6	202.2
55°	217.8	232.0	351.4	328.2	228.2	196.0	184.7	190.8	201.2	192.3	188.0
57.5°	197.5	207.9	309.2	297.4	205.0	180.4	170.5	180.4	192.3	181.8	173.3
60°	178.0	185.6	266.6	266.6	182.8	163.8	155.8	167.6	179.9	168.6	158.6
62.5°	159.6	165.3	229.7	234.9	161.5	147.3	142.1	154.8	169.5	156.7	144.4
65°	140.6	144.9	196.5	204.6	141.1	129.3	126.9	141.6	157.2	143.5	129.7



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CATALOG NUMBER: S123-DR-LO-30-X-0048-1-U-DD-3-W

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
67.5°	124.1	126.0	166.2	174.7	121.2	112.2	110.8	127.4	143.5	129.3	112.7
70°	107.0	107.5	138.3	146.3	101.8	96.6	95.7	111.8	128.8	113.6	98.0
72.5°	90.0	90.0	112.2	118.9	84.3	80.5	81.0	97.1	112.2	98.5	83.3
75°	73.4	72.9	89.0	94.2	67.2	64.9	65.8	81.9	95.2	82.9	68.2
77.5°	57.8	58.2	68.2	71.5	51.6	50.2	53.0	66.3	77.7	67.2	54.0
80°	43.6	42.1	49.2	51.1	36.9	36.9	38.8	50.7	59.7	51.6	40.7
82.5°	29.4	29.8	32.7	33.6	24.1	24.6	26.5	36.0	43.1	36.9	28.4
85°	17.5	17.5	18.9	18.9	13.7	14.2	17.0	22.3	27.0	23.7	17.5
87.5°	7.6	7.6	8.0	8.0	6.2	6.6	8.0	10.9	13.3	11.8	9.0
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



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CATALOG NUMBER: S123-DR-LO-30-X-0048-1-U-DD-3-W

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	548.3	548.3	548.3	548.3	548.3	548.3
1°	540.8	555.0	555.4	566.3	569.2	566.3
2°	534.6	554.5	563.0	580.1	587.6	587.6
3°	528.0	554.0	569.2	594.7	607.1	608.5
4°	520.9	552.6	576.3	609.4	626.5	630.7
5°	514.3	551.7	582.0	623.6	646.4	653.9
6°	507.6	550.7	589.1	638.8	667.2	675.2
7°	501.5	548.8	595.7	653.9	687.1	697.5
8°	494.8	548.8	601.9	668.6	706.5	718.8
9°	490.1	546.0	610.4	682.4	724.5	735.9
10°	481.6	543.1	614.2	695.6	740.1	751.5
11°	474.5	539.8	618.9	708.9	753.9	765.7
12°	467.4	537.0	624.6	719.8	765.7	779.0
13°	461.2	534.1	628.4	726.9	775.6	788.9
14°	454.6	530.8	633.6	733.5	784.2	797.9
15°	447.5	527.5	637.4	739.2	791.7	809.3
16°	441.3	525.1	640.7	743.9	798.8	818.3
17°	435.2	520.9	644.0	746.8	807.4	831.0
18°	428.5	516.1	644.9	749.1	815.9	846.2
19°	420.5	510.9	645.4	750.1	826.8	861.3
20°	413.9	506.2	644.9	751.5	840.5	881.2
21°	407.7	501.5	643.0	751.5	855.2	898.3
22°	400.6	497.2	640.7	753.9	869.9	914.9
23°	394.0	492.5	638.3	754.8	883.1	928.6
24°	387.3	487.3	633.6	755.7	895.4	938.5
25°	381.2	481.6	629.3	757.6	905.9	943.3
26°	374.6	476.4	623.2	759.5	913.4	939.0
27°	367.9	470.7	616.1	762.9	915.3	926.2
28°	361.3	465.0	606.6	766.2	911.1	907.8
29°	355.1	458.8	598.5	769.5	899.7	875.1
30°	349.0	453.2	590.0	772.8	880.8	833.4
32.5°	334.3	436.6	569.7	778.0	804.5	719.8
35°	318.7	418.6	545.0	770.9	701.8	611.3
37.5°	304.0	398.7	520.9	750.5	598.5	506.7
40°	289.8	377.4	496.7	713.6	505.7	429.5
42.5°	275.1	355.1	472.1	657.3	430.9	375.0
45°	260.9	331.5	446.1	593.3	371.2	325.3
47.5°	246.2	306.4	419.5	526.6	324.4	293.6
50°	230.1	281.3	392.1	462.6	287.9	264.7
52.5°	214.5	257.1	363.2	403.9	257.1	240.1
55°	200.8	233.0	332.9	351.8	230.1	217.8
57.5°	184.7	209.8	302.1	305.9	206.5	197.5
60°	167.2	186.6	270.4	265.2	184.7	178.0
62.5°	150.6	165.3	238.7	228.2	163.8	159.6
65°	135.0	144.9	207.9	195.6	144.9	140.6



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CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
67.5°	117.0	124.5	178.0	165.3	126.4	124.1
70°	99.0	104.6	149.6	138.3	106.5	107.0
72.5°	84.3	86.2	122.6	111.8	90.9	90.0
75°	68.2	69.6	96.6	89.0	73.9	73.4
77.5°	53.0	53.5	73.9	68.7	58.2	57.8
80°	39.3	38.8	53.0	49.7	42.1	43.6
82.5°	26.5	26.0	35.0	33.6	30.3	29.4
85°	16.1	15.2	20.4	19.9	18.0	17.5
87.5°	8.0	7.6	9.5	9.5	8.5	7.6
90°	0.0	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)