

Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269



Scaled data based on original data using
LM-79-2019 Approved Method: Electrical and Photometric Measurements of Solid-
State Lighting Products

Test Report Prepared for
Cooper Lighting Solutions

Brand: NEO-RAY

Report Number: P902373

Luminaire Tested: DFN2DIP-4P4F0-070D030US830-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P902373
REPORT IS A COMBINATION OF REPORTS P900608 AND P897523
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P4F0-070D030US830-RLLONL
Description: 4 foot, 90deg - 4way Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

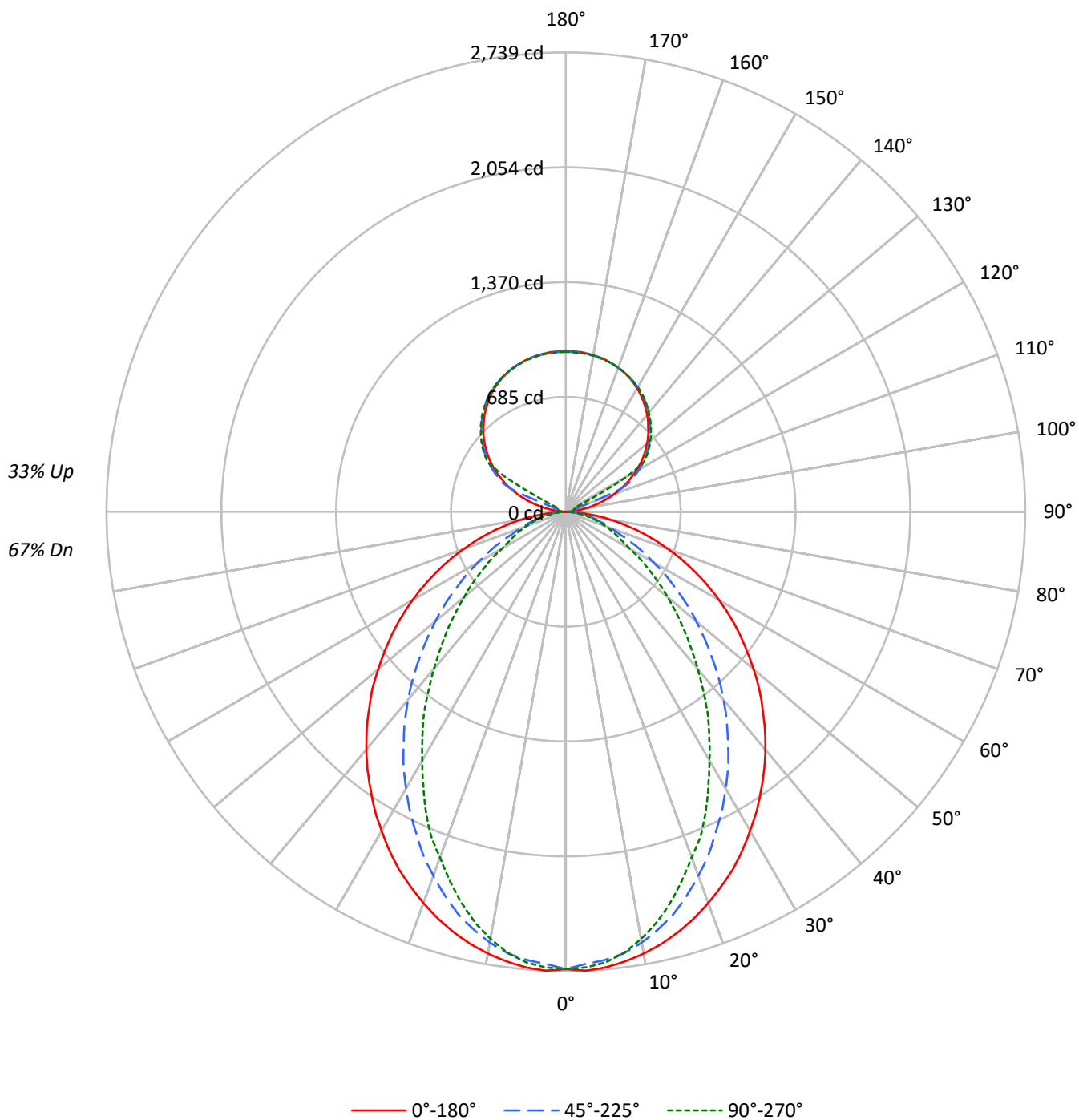
Lumens per Lamp: N/A
Luminaire Lumens: 8407.4 lumens
Efficiency: N/A
Efficacy: 86.4 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 4.07' x L: 4.07' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 97.3
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9789
Total Harmonic Distortion (THDi): 0.074
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 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					0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10
RCR																				
0	111	111	111	111	105	105	105	105	93	93	93	82	82	82	71	71	71	67		
1	102	98	94	91	96	93	89	86	82	80	78	73	71	69	64	63	62	58		
2	94	86	80	75	88	82	76	72	73	69	65	65	62	59	57	55	53	49		
3	86	77	69	64	81	72	66	61	65	60	56	58	54	51	51	48	46	42		
4	79	68	60	54	74	65	58	52	58	53	48	52	48	44	46	43	40	37		
5	73	61	53	47	68	58	51	45	52	47	42	47	42	39	42	38	35	33		
6	67	55	47	41	63	53	45	40	48	42	37	43	38	34	38	35	31	29		
7	62	50	42	37	59	48	41	36	43	37	33	39	34	31	35	31	28	26		
8	58	46	38	33	55	44	37	32	40	34	30	36	31	28	33	29	26	23		
9	54	42	35	30	51	40	33	29	37	31	27	33	29	25	30	26	23	21		
10	51	39	32	27	48	37	31	26	34	28	24	31	26	23	28	24	21	19		

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1769	1769	1769
5°	1772	1742	1753
10°	1755	1708	1696
15°	1731	1652	1609
20°	1699	1575	1501
25°	1666	1488	1397
30°	1622	1399	1265
35°	1579	1303	1149
40°	1536	1204	1016
45°	1485	1094	895
50°	1433	983	777
55°	1378	864	664
60°	1315	740	547
65°	1242	613	493
70°	1153	496	447
75°	1042	438	408
80°	882	370	356
85°	616	249	272

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 1485 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	255.6	3.0
10°-20°	701.6	8.3
20°-30°	985.0	11.7
30°-40°	1073.7	12.8
40°-50°	986.9	11.7
50°-60°	775.0	9.2
60°-70°	504.5	6.0
70°-80°	259.7	3.1
80°-90°	67.9	0.8
90°-100°	31.5	0.4
100°-110°	117.3	1.4
110°-120°	311.1	3.7
120°-130°	516.0	6.1
130°-140°	548.1	6.5
140°-150°	509.4	6.1
150°-160°	409.6	4.9
160°-170°	263.9	3.1
170°-180°	90.8	1.1
0°-30°	1942.1	23.1
0°-40°	3015.8	35.9
0°-60°	4777.7	56.8
0°-90°	5609.8	66.7
90°-120°	459.9	5.5
90°-150°	2033.4	24.2
90°-180°	2798.0	33.3
0°-180°	8407.4	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2727	2727	2727	2727	2727	
5°	2727	2714	2682	2705	2697	259
15°	2594	2566	2483	2436	2411	731
25°	2354	2275	2112	2011	1974	1083
35°	2028	1903	1686	1530	1476	1270
45°	1658	1493	1234	1059	999	1281
55°	1261	1068	802	654	607	1127
65°	851	651	429	346	338	844
75°	454	281	197	180	178	480
85°	106	54	47	47	47	122
90°	1	8	14	17	19	8
95°	45	22	27	30	30	53
105°	210	231	42	50	52	224
115°	397	409	426	106	57	391
125°	561	570	584	588	590	501
135°	695	706	712	719	718	537
145°	806	805	817	822	818	504
155°	887	881	889	894	888	409
165°	935	931	933	938	933	264
175°	956	952	953	958	951	91
180°	954	954	954	954	954	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2726.9	2726.9	2726.9	2726.9	2726.9
2.5°	2739.1	2726.9	2699.6	2724.5	2719.5
5°	2726.9	2714.5	2682.4	2704.6	2697.3
7.5°	2704.6	2689.9	2655.4	2665.0	2652.8
10°	2675.0	2657.8	2608.5	2600.9	2586.2
12.5°	2638.1	2615.8	2549.1	2534.4	2507.2
15°	2593.6	2566.4	2482.6	2435.7	2411.1
17.5°	2541.8	2502.3	2398.6	2344.3	2304.8
20°	2482.6	2433.1	2309.8	2248.2	2193.8
22.5°	2418.5	2361.6	2218.4	2134.6	2097.7
25°	2354.3	2275.2	2112.3	2011.3	1974.2
27.5°	2277.8	2193.8	2013.6	1897.7	1840.9
30°	2196.4	2102.4	1905.0	1779.3	1712.6
32.5°	2117.3	2003.8	1801.6	1653.4	1591.6
35°	2028.5	1902.6	1685.6	1530.1	1475.6
37.5°	1942.2	1806.3	1577.0	1406.5	1345.0
40°	1850.8	1702.9	1463.3	1288.2	1224.0
42.5°	1757.1	1599.2	1349.9	1167.2	1105.7
45°	1658.4	1492.9	1234.0	1058.6	999.4
47.5°	1564.6	1389.5	1122.9	947.5	893.3
50°	1460.9	1285.8	1014.3	843.9	792.3
52.5°	1359.6	1174.5	910.6	747.7	700.9
55°	1260.9	1068.5	801.9	654.0	607.2
57.5°	1159.9	962.4	705.9	567.6	528.1
60°	1056.2	858.8	604.5	478.9	439.3
62.5°	955.1	757.7	518.1	399.8	380.1
65°	851.4	651.4	429.4	345.6	338.0
67.5°	752.7	552.7	345.6	303.4	296.1
70°	649.0	456.6	286.2	261.6	251.6
72.5°	550.4	367.6	239.3	219.7	214.7
75°	454.0	281.2	197.4	180.1	177.8
77.5°	357.9	199.7	155.5	145.5	140.6
80°	268.9	143.2	118.4	108.7	108.7
82.5°	187.5	96.3	81.4	76.4	76.4
85°	106.0	54.2	46.8	46.8	46.8
87.5°	39.5	19.6	19.6	17.2	17.2
90°	0.7	8.3	13.8	17.3	18.6
92.5°	17.3	14.5	16.6	18.0	18.6
95°	44.9	22.1	26.9	30.4	29.7
97.5°	80.8	24.2	35.2	37.3	38.0
100°	122.2	27.6	39.4	44.9	46.3
102.5°	167.8	166.5	40.7	48.3	50.4
105°	209.9	230.6	42.1	49.7	52.5
107.5°	258.9	276.2	43.5	51.1	53.9
110°	305.9	320.4	120.8	51.8	54.6



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	350.2	362.5	350.8	53.2	55.2
115°	397.0	408.8	426.0	106.3	56.6
117.5°	437.8	451.6	463.4	364.6	183.7
120°	483.3	493.7	506.1	514.4	421.2
122.5°	522.0	533.1	547.0	551.0	551.8
125°	561.4	570.3	583.5	588.3	590.4
127.5°	597.3	606.9	617.4	624.2	624.9
130°	631.1	642.2	649.8	657.3	656.8
132.5°	665.6	674.7	682.2	688.4	687.8
135°	694.7	705.8	711.9	718.9	717.5
137.5°	725.0	733.3	740.3	747.2	745.1
140°	754.7	760.3	767.8	774.0	770.6
142.5°	779.7	784.5	793.4	798.9	795.5
145°	805.9	805.1	816.9	821.7	818.2
147.5°	828.6	826.5	838.3	841.7	839.0
150°	850.7	845.9	857.0	861.0	857.6
152.5°	869.3	863.8	874.2	878.4	873.5
155°	887.3	881.2	889.4	893.5	888.1
157.5°	901.8	896.4	902.6	907.4	901.8
160°	914.3	910.1	914.3	918.4	913.5
162.5°	925.3	921.1	924.6	929.4	923.2
165°	934.9	930.9	932.9	937.7	932.9
167.5°	942.5	938.4	940.5	945.4	939.1
170°	948.8	944.6	946.0	950.8	944.6
172.5°	952.9	948.8	950.2	955.0	948.8
175°	956.3	951.5	952.9	957.7	950.8
177.5°	957.7	952.9	953.7	958.5	952.3
180°	954.3	954.3	954.3	954.3	954.3

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CIE UGR TABLE:

Reflectances:											
Ceiling		0.7	0.7	0.5	0.5	0.3	0.7	0.7	0.5	0.5	0.3
Wall		0.5	0.3	0.5	0.3	0.3	0.5	0.3	0.5	0.3	0.3
Reference plane		0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Room dimensions		Viewed crosswise					Viewed endwise				
X=2H	Y=2H	10.58	11.57	11.39	12.39	13.41	6.54	7.53	7.35	8.36	9.37
	3H	12.28	13.16	13.10	14.00	15.04	7.75	8.63	8.57	9.46	10.51
	4H	12.90	13.73	13.73	14.57	15.63	8.20	9.04	9.04	9.88	10.93
	6H	13.33	14.10	14.18	14.95	16.01	8.54	9.30	9.38	10.15	11.22
	8H	13.47	14.20	14.32	15.06	16.13	8.63	9.36	9.49	10.23	11.29
	12H	13.53	14.23	14.40	15.09	16.18	8.68	9.38	9.54	10.24	11.33
4H	2H	10.62	11.45	11.46	12.29	13.35	7.16	7.99	8.00	8.84	9.89
	3H	12.47	13.16	13.32	14.04	15.11	8.53	9.22	9.38	10.09	11.16
	4H	13.17	13.80	14.04	14.67	15.77	9.08	9.71	9.95	10.58	11.68
	6H	13.70	14.24	14.58	15.14	16.24	9.51	10.06	10.39	10.95	12.05
	8H	13.88	14.39	14.77	15.28	16.39	9.65	10.15	10.53	11.04	12.16
	12H	13.99	14.44	14.89	15.35	16.47	9.72	10.17	10.62	11.08	12.20
8H	4H	13.15	13.66	14.04	14.55	15.66	9.38	9.89	10.26	10.78	11.89
	6H	13.73	14.15	14.64	15.08	16.19	9.91	10.32	10.82	11.26	12.37
	8H	13.95	14.32	14.87	15.25	16.38	10.10	10.47	11.02	11.39	12.52
	12H	14.10	14.43	15.02	15.34	16.53	10.23	10.55	11.15	11.47	12.65
12H	4H	13.11	13.57	14.01	14.48	15.59	9.39	9.85	10.29	10.76	11.87
	6H	13.71	14.08	14.63	15.00	16.13	9.96	10.33	10.88	11.25	12.38
	8H	13.94	14.26	14.86	15.18	16.36	10.18	10.50	11.10	11.42	12.60