

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: P904003

Luminaire Tested: DFN2DIP-SQ4F0-070D140US830-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P904003
REPORT IS A COMBINATION OF REPORTS P901708 AND P898471
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-070D140US830-RLLONL
Description: 4 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

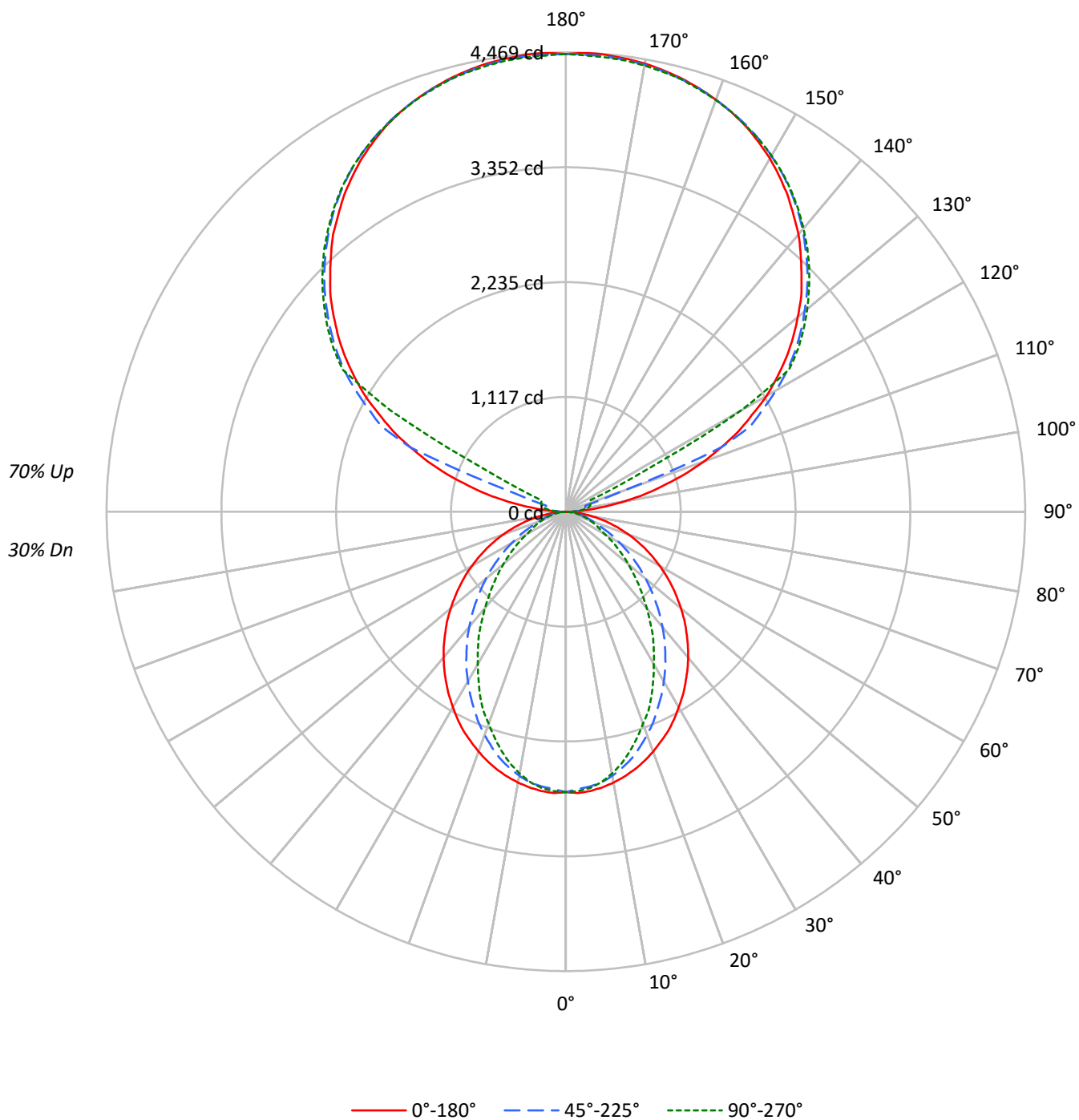
Lumens per Lamp: N/A
Luminaire Lumens: 18671.7 lumens
Efficiency: N/A
Efficacy: 111.7 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 167.1
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9967
Total Harmonic Distortion (THDi): 0.063
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				10
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10
RCR																	
0	102	102	102	102	92	92	92	92	72	72	72	54	54	54	38	38	38
1	94	90	86	83	84	81	77	75	64	62	60	48	47	46	34	33	32
2	85	78	73	68	76	71	66	62	56	53	50	43	40	39	30	29	28
3	78	69	62	57	70	62	57	52	50	46	42	38	35	33	27	25	24
4	71	61	54	48	64	55	49	44	44	40	36	34	31	28	24	22	21
5	66	55	47	41	59	49	43	38	40	35	31	30	27	25	22	20	18
6	60	49	41	36	54	44	38	33	36	31	27	28	24	22	20	18	16
7	56	44	37	31	50	40	34	29	32	28	24	25	22	19	18	16	15
8	52	40	33	28	46	36	30	25	29	25	21	23	20	17	17	15	13
9	48	37	29	25	43	33	27	23	27	22	19	21	18	15	16	13	12
10	45	33	27	22	40	30	24	20	25	20	17	20	16	14	14	12	11

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1913	1913	1913
5°	1916	1883	1896
10°	1897	1847	1834
15°	1871	1786	1740
20°	1837	1702	1623
25°	1801	1608	1510
30°	1754	1512	1367
35°	1707	1408	1242
40°	1660	1301	1098
45°	1605	1182	967
50°	1548	1062	839
55°	1488	933	717
60°	1419	798	590
65°	1340	662	532
70°	1244	534	482
75°	1124	472	440
80°	949	397	384
85°	661	267	292

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 2388 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	255.6	1.4
10°-20°	701.6	3.8
20°-30°	985.0	5.3
30°-40°	1073.7	5.8
40°-50°	986.9	5.3
50°-60°	775.0	4.2
60°-70°	504.5	2.7
70°-80°	259.7	1.4
80°-90°	74.1	0.4
90°-100°	146.9	0.8
100°-110°	547.4	2.9
110°-120°	1451.8	7.8
120°-130°	2408.0	12.9
130°-140°	2557.8	13.7
140°-150°	2377.2	12.7
150°-160°	1911.2	10.2
160°-170°	1231.5	6.6
170°-180°	423.9	2.3
0°-30°	1942.1	10.4
0°-40°	3015.8	16.2
0°-60°	4777.7	25.6
0°-90°	5615.9	30.1
90°-120°	2146.1	11.5
90°-150°	9489.1	50.8
90°-180°	13056.0	69.9
0°-180°	18671.7	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°	3	39	64	81	87	17
95°	209	103	126	142	139	248
105°	980	1076	197	232	245	1047
115°	1853	1908	1988	496	264	1824
125°	2620	2662	2723	2746	2755	2336
135°	3242	3294	3322	3355	3348	2504
145°	3761	3757	3812	3835	3818	2352
155°	4141	4112	4151	4170	4144	1908
165°	4363	4344	4354	4376	4354	1233
175°	4463	4440	4447	4469	4437	425
180°	4453	4453	4453	4453	4453	

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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°	3.0	38.6	64.3	80.8	86.9
92.5°	80.8	67.8	77.3	83.8	86.9
95°	209.3	102.9	125.5	141.9	138.6
97.5°	376.9	112.9	164.2	174.1	177.2
100°	570.5	128.9	183.7	209.3	215.8
102.5°	782.9	776.7	190.2	225.4	235.4
105°	979.6	1076.4	196.7	231.9	244.9
107.5°	1208.4	1288.7	203.2	238.4	251.4
110°	1427.7	1495.1	564.0	241.9	254.5

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1633.9	1691.7	1637.0	248.0	257.9
115°	1852.8	1907.5	1988.3	496.3	264.4
117.5°	2043.0	2107.2	2162.4	1701.3	857.1
120°	2255.8	2304.0	2362.1	2400.7	1965.7
122.5°	2436.0	2487.7	2552.3	2571.4	2574.9
125°	2619.7	2661.7	2723.0	2745.5	2755.1
127.5°	2787.3	2832.4	2881.0	2913.1	2916.2
130°	2945.3	2997.0	3032.2	3067.8	3064.7
132.5°	3106.4	3148.5	3183.7	3212.7	3209.7
135°	3241.9	3293.5	3322.2	3354.7	3348.2
137.5°	3383.4	3422.1	3454.6	3486.7	3477.2
140°	3522.0	3548.0	3583.2	3612.3	3596.2
142.5°	3638.3	3660.8	3702.6	3728.2	3712.1
145°	3760.7	3757.3	3812.0	3834.6	3818.5
147.5°	3866.8	3857.2	3911.9	3928.0	3915.3
150°	3970.1	3947.5	3999.1	4018.2	4002.2
152.5°	4056.9	4031.3	4079.5	4099.0	4076.4
155°	4140.7	4112.0	4150.7	4169.8	4144.2
157.5°	4208.5	4182.8	4211.9	4234.5	4208.5
160°	4266.6	4247.1	4266.6	4285.7	4263.2
162.5°	4317.9	4298.7	4314.9	4337.4	4308.4
165°	4363.0	4343.9	4353.5	4376.0	4353.5
167.5°	4398.7	4379.1	4389.0	4411.7	4382.5
170°	4427.7	4408.2	4414.7	4437.3	4408.2
172.5°	4446.8	4427.7	4434.2	4456.8	4427.7
175°	4462.9	4440.3	4446.8	4469.4	4437.3
177.5°	4469.4	4446.8	4450.3	4472.8	4443.8
180°	4453.3	4453.3	4453.3	4453.3	4453.3

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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	7.19	7.88	8.31	8.99	10.52	3.15	3.84	4.27	4.95	6.48
	3H	8.86	9.48	9.99	10.60	12.14	4.33	4.95	5.46	6.06	7.61
	4H	9.47	10.05	10.60	11.17	12.72	4.78	5.36	5.91	6.48	8.03
	6H	9.89	10.43	11.03	11.54	13.11	5.09	5.63	6.23	6.75	8.31
	8H	10.01	10.52	11.16	11.66	13.22	5.18	5.69	6.32	6.82	8.38
	12H	10.07	10.56	11.22	11.68	13.26	5.22	5.70	6.37	6.83	8.41
4H	2H	7.19	7.78	8.34	8.90	10.45	3.73	4.32	4.88	5.44	6.99
	3H	9.01	9.50	10.16	10.64	12.21	5.07	5.56	6.22	6.70	8.27
	4H	9.70	10.15	10.85	11.28	12.87	5.62	6.06	6.76	7.19	8.78
	6H	10.22	10.60	11.37	11.75	13.33	6.03	6.41	7.18	7.57	9.14
	8H	10.39	10.75	11.55	11.89	13.49	6.15	6.51	7.31	7.66	9.25
	12H	10.48	10.81	11.65	11.96	13.56	6.21	6.54	7.38	7.69	9.29
8H	4H	9.66	10.02	10.82	11.17	12.76	5.89	6.25	7.04	7.39	8.98
	6H	10.23	10.52	11.40	11.71	13.30	6.40	6.70	7.58	7.89	9.47
	8H	10.45	10.70	11.63	11.87	13.48	6.59	6.85	7.77	8.02	9.63
	12H	10.58	10.81	11.77	11.97	13.62	6.71	6.93	7.89	8.10	9.74
12H	4H	9.61	9.93	10.78	11.09	12.69	5.89	6.21	7.06	7.37	8.97
	6H	10.20	10.46	11.38	11.63	13.24	6.45	6.71	7.63	7.88	9.49
	8H	10.42	10.65	11.60	11.81	13.45	6.66	6.88	7.84	8.05	9.69