

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: P909495

Luminaire Tested: DFN2DIP-SQ4F0-080D140US840-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P909495
REPORT IS A COMBINATION OF REPORTS P901710 AND P898471
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-080D140US840-RLLONL
Description: 4 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

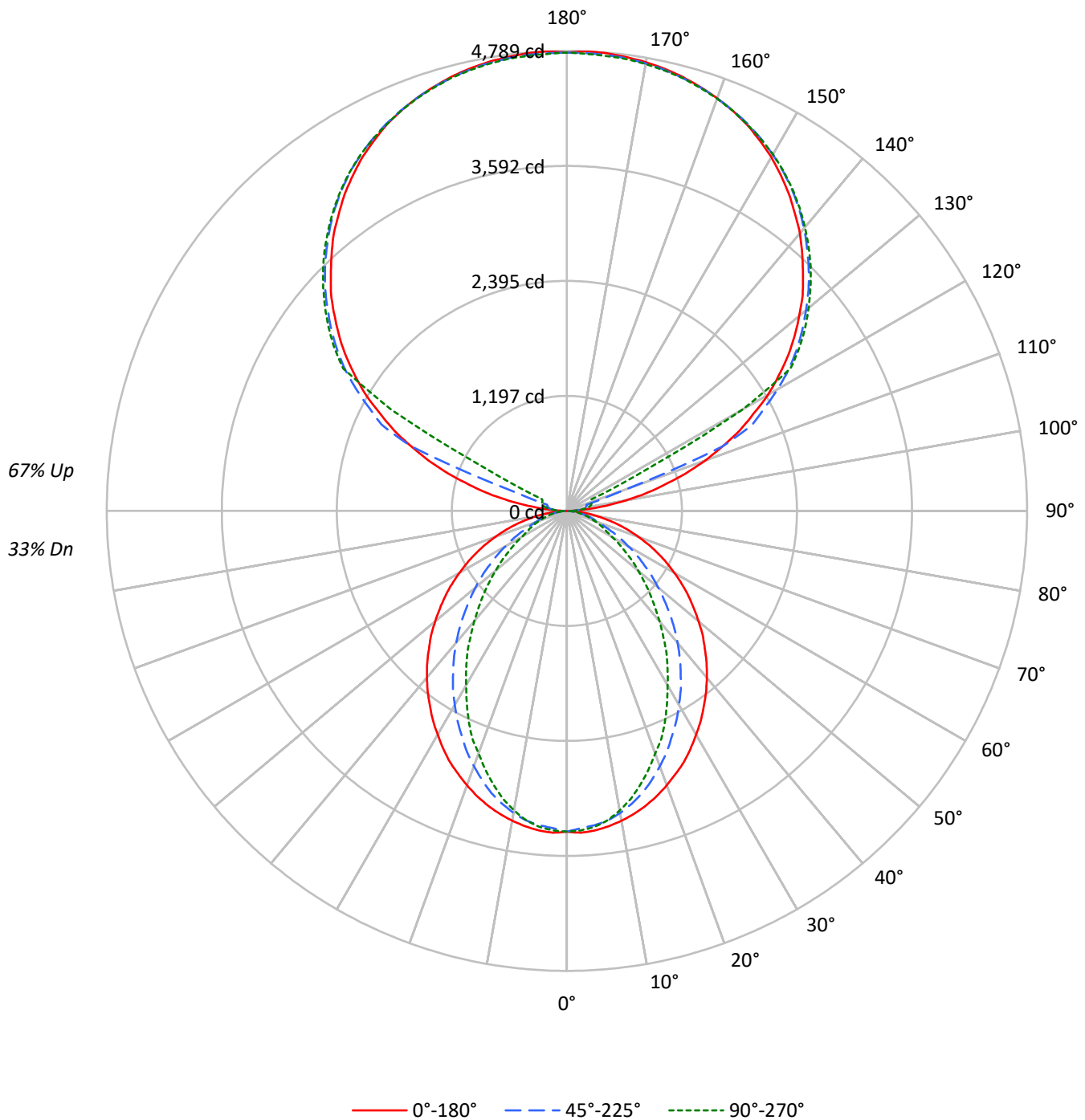
Lumens per Lamp: N/A
Luminaire Lumens: 20863.8 lumens
Efficiency: N/A
Efficacy: 117.7 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 177.2
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9954
Total Harmonic Distortion (THDi): 0.076
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	103	103	103	103	93	93	93	93	74	74	74	56	56	56	40	40	40
1	94	90	87	83	85	81	78	76	65	63	61	50	49	48	36	35	35
2	86	79	73	68	77	72	67	62	57	54	51	44	42	40	32	31	30
3	79	70	63	57	71	63	57	53	51	47	43	39	37	34	29	27	26
4	72	62	54	49	65	56	50	45	45	41	37	35	32	30	26	24	22
5	66	55	47	42	59	50	43	38	41	36	32	32	28	26	24	21	20
6	61	49	42	36	55	45	38	33	37	32	28	29	25	23	21	19	17
7	56	45	37	32	51	41	34	29	33	28	25	26	23	20	20	17	16
8	52	41	33	28	47	37	31	26	30	25	22	24	21	18	18	16	14
9	49	37	30	25	44	34	27	23	28	23	20	22	19	16	17	14	13
10	45	34	27	22	41	31	25	21	26	21	18	20	17	15	16	13	12

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2343	2343	2343
5°	2347	2306	2321
10°	2323	2261	2246
15°	2291	2187	2130
20°	2249	2085	1987
25°	2206	1969	1849
30°	2147	1851	1674
35°	2090	1724	1521
40°	2032	1593	1344
45°	1965	1447	1184
50°	1895	1300	1028
55°	1822	1142	878
60°	1738	978	723
65°	1641	810	651
70°	1524	654	591
75°	1376	578	539
80°	1162	486	469
85°	810	327	358

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 2559 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	312.9	1.5
10°-20°	859.1	4.1
20°-30°	1206.1	5.8
30°-40°	1314.7	6.3
40°-50°	1208.4	5.8
50°-60°	949.0	4.5
60°-70°	617.7	3.0
70°-80°	318.0	1.5
80°-90°	89.6	0.4
90°-100°	157.3	0.8
100°-110°	586.5	2.8
110°-120°	1555.5	7.5
120°-130°	2580.0	12.4
130°-140°	2740.5	13.1
140°-150°	2547.0	12.2
150°-160°	2047.7	9.8
160°-170°	1319.5	6.3
170°-180°	454.2	2.2
0°-30°	2378.1	11.4
0°-40°	3692.9	17.7
0°-60°	5850.2	28.0
0°-90°	6875.5	33.0
90°-120°	2299.4	11.0
90°-150°	10166.9	48.7
90°-180°	13988.0	67.0
0°-180°	20863.8	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3339	3339	3339	3339	3339	
5°	3339	3324	3284	3312	3303	317
15°	3176	3142	3040	2982	2952	895
25°	2883	2786	2587	2463	2417	1326
35°	2484	2330	2064	1874	1807	1555
45°	2031	1828	1511	1296	1224	1568
55°	1544	1308	982	801	744	1380
65°	1043	798	526	423	414	1034
75°	556	344	242	221	218	588
85°	130	66	57	57	57	149
90°	3	41	69	86	93	19
95°	224	110	134	152	148	266
105°	1050	1153	211	248	262	1121
115°	1985	2044	2130	532	283	1954
125°	2807	2852	2918	2942	2952	2503
135°	3473	3529	3560	3594	3587	2683
145°	4029	4026	4084	4108	4091	2520
155°	4436	4406	4447	4468	4440	2044
165°	4675	4654	4664	4689	4664	1321
175°	4782	4758	4764	4789	4754	455
180°	4771	4771	4771	4771	4771	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3339.0	3339.0	3339.0	3339.0	3339.0
2.5°	3354.1	3339.0	3305.7	3336.1	3330.0
5°	3339.0	3324.0	3284.5	3311.8	3302.8
7.5°	3311.8	3293.8	3251.5	3263.4	3248.2
10°	3275.5	3254.4	3194.1	3184.8	3166.8
12.5°	3230.4	3203.1	3121.3	3103.3	3070.0
15°	3175.8	3142.5	3039.9	2982.5	2952.3
17.5°	3112.3	3063.9	2937.0	2870.6	2822.2
20°	3039.9	2979.3	2828.3	2753.0	2686.2
22.5°	2961.3	2891.7	2716.4	2613.8	2568.6
25°	2882.8	2786.0	2586.6	2462.9	2417.3
27.5°	2789.1	2686.2	2465.7	2323.7	2254.1
30°	2689.5	2574.3	2332.7	2178.8	2097.0
32.5°	2592.6	2453.6	2206.1	2024.6	1948.9
35°	2484.0	2329.8	2064.0	1873.6	1806.9
37.5°	2378.1	2211.8	1931.0	1722.2	1646.9
40°	2266.3	2085.2	1791.8	1577.3	1498.7
42.5°	2151.5	1958.2	1652.9	1429.3	1353.8
45°	2030.6	1828.1	1511.0	1296.2	1223.8
47.5°	1915.9	1701.4	1375.0	1160.2	1093.9
50°	1788.9	1574.5	1242.0	1033.3	970.1
52.5°	1664.9	1438.1	1115.0	915.6	858.3
55°	1544.0	1308.4	982.0	800.8	743.5
57.5°	1420.3	1178.5	864.3	695.1	646.6
60°	1293.2	1051.6	740.2	586.3	538.0
62.5°	1169.5	927.8	634.5	489.6	465.5
65°	1042.6	797.6	525.7	423.2	413.8
67.5°	921.7	676.8	423.2	371.5	362.6
70°	794.8	559.2	350.4	320.2	308.1
72.5°	673.9	450.1	293.1	269.0	262.9
75°	555.9	344.4	241.8	220.6	217.7
77.5°	438.3	244.6	190.5	178.2	172.2
80°	329.2	175.4	144.9	133.0	133.0
82.5°	229.5	118.0	99.7	93.6	93.6
85°	129.9	66.3	57.4	57.4	57.4
87.5°	48.4	24.0	24.0	21.2	21.2
90°	3.2	41.4	68.9	86.5	93.1
92.5°	86.5	72.6	82.8	89.8	93.1
95°	224.3	110.3	134.5	152.1	148.5
97.5°	403.8	121.0	175.9	186.5	189.9
100°	611.3	138.1	196.8	224.3	231.3
102.5°	838.8	832.2	203.8	241.5	252.2
105°	1049.6	1153.3	210.8	248.4	262.4
107.5°	1294.7	1380.8	217.7	255.4	269.3
110°	1529.6	1601.8	604.3	259.1	272.7

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1750.6	1812.5	1753.9	265.7	276.3
115°	1985.2	2043.8	2130.3	531.8	283.3
117.5°	2188.9	2257.8	2316.8	1822.8	918.4
120°	2416.9	2468.5	2530.8	2572.2	2106.1
122.5°	2610.0	2665.3	2734.6	2755.1	2758.9
125°	2806.8	2851.9	2917.5	2941.6	2951.9
127.5°	2986.4	3034.7	3086.8	3121.2	3124.5
130°	3155.6	3211.1	3248.7	3286.9	3283.6
132.5°	3328.3	3373.4	3411.1	3442.2	3439.0
135°	3473.4	3528.8	3559.5	3594.3	3587.3
137.5°	3625.1	3666.5	3701.4	3735.8	3725.6
140°	3773.6	3801.4	3839.1	3870.3	3853.0
142.5°	3898.2	3922.3	3967.1	3994.5	3977.3
145°	4029.4	4025.6	4084.3	4108.5	4091.3
147.5°	4143.0	4132.7	4191.3	4208.5	4195.0
150°	4253.7	4229.4	4284.8	4305.3	4288.1
152.5°	4346.7	4319.2	4370.9	4391.8	4367.6
155°	4436.4	4405.7	4447.1	4467.6	4440.2
157.5°	4509.0	4481.6	4512.8	4536.9	4509.0
160°	4571.4	4550.5	4571.4	4591.9	4567.7
162.5°	4626.3	4605.8	4623.1	4647.2	4616.1
165°	4674.7	4654.2	4664.5	4688.6	4664.5
167.5°	4712.8	4691.9	4702.5	4726.8	4695.6
170°	4743.9	4723.0	4730.0	4754.2	4723.0
172.5°	4764.4	4743.9	4750.9	4775.1	4743.9
175°	4781.7	4757.5	4764.4	4788.7	4754.2
177.5°	4788.7	4764.4	4768.2	4792.3	4761.2
180°	4771.4	4771.4	4771.4	4771.4	4771.4

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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	8.28	8.98	9.37	10.07	11.57	4.24	4.95	5.33	6.04	7.53
	3H	9.95	10.58	11.05	11.68	13.20	5.42	6.05	6.52	7.15	8.66
	4H	10.55	11.16	11.67	12.25	13.78	5.86	6.46	6.98	7.56	9.08
	6H	10.97	11.53	12.10	12.63	14.16	6.18	6.73	7.30	7.83	9.36
	8H	11.10	11.62	12.23	12.74	14.27	6.26	6.79	7.39	7.91	9.43
	12H	11.16	11.66	12.29	12.77	14.32	6.30	6.80	7.44	7.91	9.46
4H	2H	8.28	8.88	9.40	9.98	11.50	4.82	5.42	5.94	6.52	8.04
	3H	10.10	10.60	11.23	11.73	13.26	6.16	6.66	7.29	7.79	9.32
	4H	10.79	11.25	11.92	12.37	13.92	6.70	7.16	7.83	8.28	9.83
	6H	11.31	11.70	12.44	12.84	14.38	7.12	7.51	8.25	8.65	10.19
	8H	11.48	11.85	12.62	12.98	14.54	7.24	7.61	8.38	8.74	10.30
	12H	11.57	11.90	12.73	13.05	14.61	7.30	7.64	8.46	8.78	10.34
8H	4H	10.75	11.12	11.89	12.25	13.81	6.98	7.34	8.11	8.47	10.03
	6H	11.32	11.62	12.48	12.79	14.35	7.49	7.79	8.65	8.97	10.52
	8H	11.54	11.80	12.70	12.95	14.53	7.68	7.95	8.85	9.10	10.68
	12H	11.67	11.91	12.84	13.05	14.67	7.80	8.03	8.97	9.18	10.79
12H	4H	10.70	11.03	11.85	12.17	13.74	6.98	7.31	8.13	8.45	10.02
	6H	11.29	11.56	12.46	12.71	14.29	7.54	7.81	8.71	8.96	10.54
	8H	11.51	11.74	12.68	12.89	14.51	7.75	7.98	8.92	9.13	10.74

END OF REPORT