

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: P909491

Luminaire Tested: DFN2DIP-SQ4F0-080D120US840-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P909491
REPORT IS A COMBINATION OF REPORTS P901692 AND P898471
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-080D120US840-RLLONL
Description: 4 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

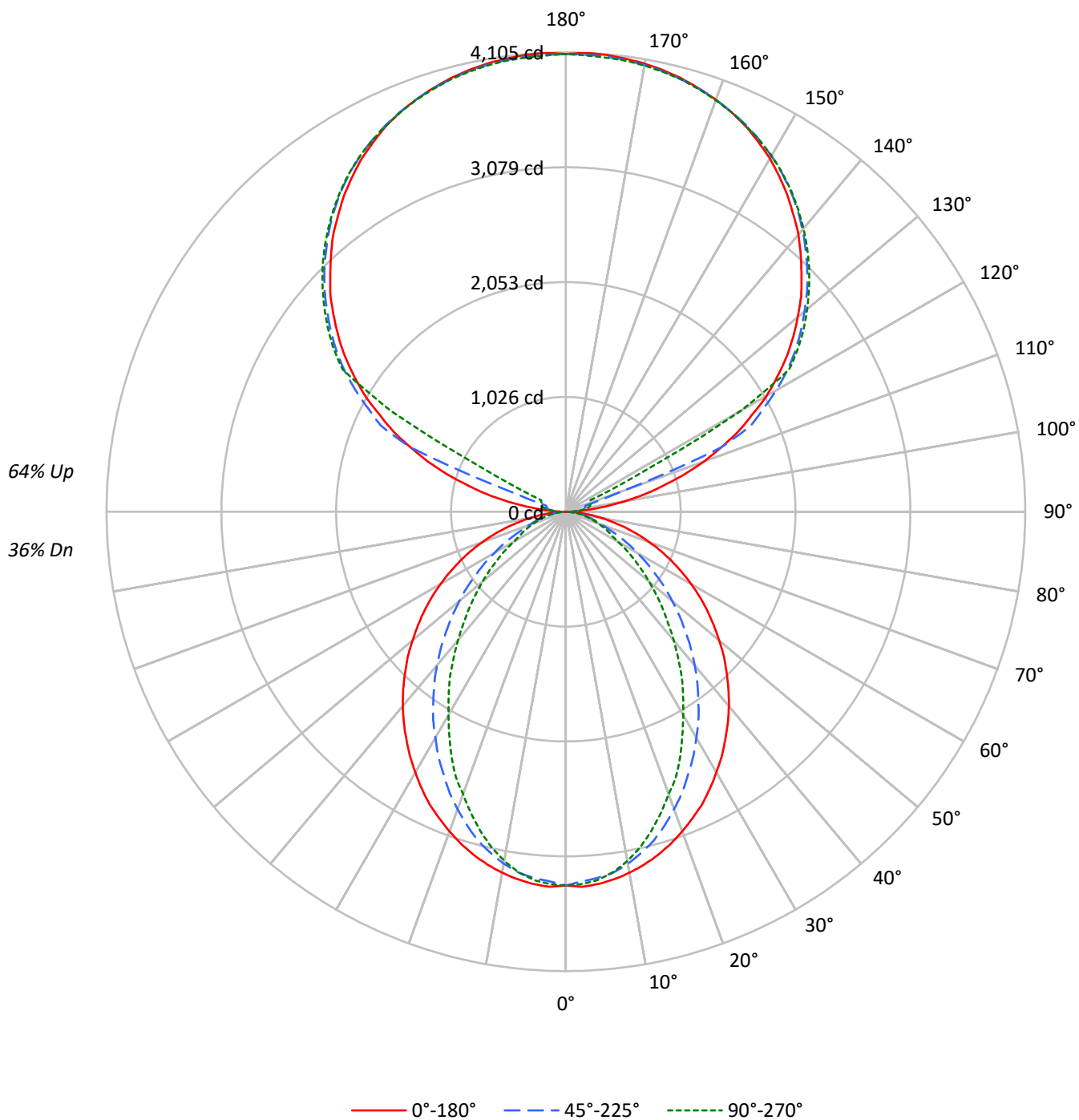
Lumens per Lamp: N/A
Luminaire Lumens: 18864.3 lumens
Efficiency: N/A
Efficacy: 116.8 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 161.5
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	50	30	10
RCR																				
0	104	104	104	104	94	94	94	94	76	76	76	59	59	59	44	44	44	44	44	36
1	95	91	87	84	86	83	80	77	67	65	63	52	51	50	39	38	38	38	38	31
2	87	80	74	69	78	73	68	63	59	56	53	46	44	42	35	33	32	32	32	27
3	79	70	63	58	72	64	58	53	52	48	45	41	38	36	31	29	28	28	28	23
4	73	63	55	49	66	57	51	46	47	42	38	37	34	31	28	26	24	24	24	20
5	67	56	48	42	60	51	44	39	42	37	33	33	30	27	25	23	21	21	21	18
6	62	50	42	37	56	46	39	34	38	33	29	30	27	24	23	21	19	19	19	16
7	57	45	38	32	52	41	35	30	34	29	26	28	24	21	21	19	17	17	17	14
8	53	41	34	29	48	38	31	27	31	26	23	25	22	19	20	17	15	15	15	13
9	49	37	30	25	45	34	28	24	29	24	20	23	20	17	18	16	14	14	14	12
10	46	34	27	23	42	32	25	21	26	22	18	22	18	15	17	14	13	13	13	11

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: 2193 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	312.9	1.7
10°-20°	859.1	4.6
20°-30°	1206.1	6.4
30°-40°	1314.7	7.0
40°-50°	1208.4	6.4
50°-60°	949.0	5.0
60°-70°	617.7	3.3
70°-80°	318.0	1.7
80°-90°	88.4	0.5
90°-100°	134.9	0.7
100°-110°	502.7	2.7
110°-120°	1333.3	7.1
120°-130°	2211.4	11.7
130°-140°	2349.0	12.5
140°-150°	2183.2	11.6
150°-160°	1755.2	9.3
160°-170°	1131.0	6.0
170°-180°	389.3	2.1
0°-30°	2378.1	12.6
0°-40°	3692.9	19.6
0°-60°	5850.2	31.0
0°-90°	6874.3	36.4
90°-120°	1970.9	10.4
90°-150°	8714.5	46.2
90°-180°	11990.0	63.6
0°-180°	18864.3	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	35	59	74	80	18
95°	192	94	115	130	127	228
105°	900	989	181	213	225	961
115°	1702	1752	1826	456	243	1675
125°	2406	2444	2501	2521	2530	2146
135°	2977	3025	3051	3081	3075	2300
145°	3454	3451	3501	3522	3507	2160
155°	3803	3776	3812	3829	3806	1752
165°	4007	3989	3998	4019	3998	1132
175°	4098	4078	4084	4105	4075	390
180°	4090	4090	4090	4090	4090	

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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°	2.8	35.4	59.1	74.1	79.8
92.5°	74.1	62.2	71.0	77.0	79.8
95°	192.2	94.5	115.2	130.4	127.2
97.5°	346.2	103.7	150.8	159.9	162.7
100°	523.9	118.5	168.6	192.2	198.2
102.5°	719.0	713.4	174.6	207.0	216.1
105°	899.6	988.6	180.7	213.0	224.9
107.5°	1109.7	1183.6	186.6	218.9	230.9
110°	1311.1	1373.0	518.0	222.1	233.7

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1500.6	1553.6	1503.4	227.7	236.8
115°	1701.5	1751.8	1825.9	455.8	242.9
117.5°	1876.2	1935.3	1985.9	1562.4	787.2
120°	2071.6	2115.9	2169.3	2204.8	1805.2
122.5°	2237.2	2284.6	2344.0	2361.6	2364.7
125°	2405.8	2444.5	2500.7	2521.4	2530.2
127.5°	2559.7	2601.2	2645.8	2675.3	2678.2
130°	2704.8	2752.3	2784.6	2817.3	2814.5
132.5°	2852.8	2891.4	2923.8	2950.5	2947.7
135°	2977.2	3024.6	3051.0	3080.9	3074.9
137.5°	3107.3	3142.7	3172.6	3202.1	3193.3
140°	3234.5	3258.3	3290.6	3317.4	3302.7
142.5°	3341.2	3362.0	3400.3	3423.8	3409.1
145°	3453.7	3450.6	3500.8	3521.6	3506.8
147.5°	3551.1	3542.3	3592.6	3607.3	3595.7
150°	3645.9	3625.2	3672.7	3690.3	3675.5
152.5°	3725.7	3702.2	3746.5	3764.4	3743.7
155°	3802.6	3776.3	3811.8	3829.4	3805.9
157.5°	3864.9	3841.3	3868.1	3888.8	3864.9
160°	3918.3	3900.4	3918.3	3935.8	3915.1
162.5°	3965.4	3947.9	3962.6	3983.3	3956.7
165°	4006.8	3989.3	3998.1	4018.9	3998.1
167.5°	4039.6	4021.6	4030.8	4051.5	4024.8
170°	4066.2	4048.3	4054.3	4075.0	4048.3
172.5°	4083.8	4066.2	4072.3	4093.0	4066.2
175°	4098.5	4077.8	4083.8	4104.6	4075.0
177.5°	4104.6	4083.8	4087.0	4107.7	4081.1
180°	4089.9	4089.9	4089.9	4089.9	4089.9

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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	8.70	9.43	9.77	10.50	11.96	4.66	5.39	5.73	6.46	7.92
	3H	10.38	11.03	11.46	12.11	13.58	5.84	6.50	6.93	7.58	9.05
	4H	10.98	11.60	12.08	12.68	14.16	6.29	6.91	7.38	7.99	9.47
	6H	11.40	11.97	12.50	13.06	14.55	6.61	7.18	7.71	8.26	9.75
	8H	11.53	12.07	12.63	13.17	14.65	6.70	7.24	7.80	8.33	9.82
	12H	11.59	12.10	12.70	13.20	14.70	6.74	7.25	7.84	8.34	9.85
4H	2H	8.71	9.33	9.81	10.41	11.89	5.25	5.87	6.35	6.95	8.43
	3H	10.53	11.05	11.64	12.15	13.65	6.59	7.11	7.70	8.21	9.70
	4H	11.23	11.70	12.33	12.79	14.31	7.14	7.61	8.24	8.70	10.22
	6H	11.74	12.14	12.86	13.26	14.77	7.55	7.95	8.67	9.07	10.58
	8H	11.92	12.29	13.03	13.40	14.92	7.68	8.06	8.79	9.17	10.69
	12H	12.01	12.35	13.14	13.47	15.00	7.74	8.08	8.87	9.20	10.73
8H	4H	11.19	11.56	12.30	12.67	14.20	7.41	7.79	8.53	8.90	10.42
	6H	11.75	12.06	12.89	13.22	14.74	7.93	8.24	9.06	9.39	10.91
	8H	11.97	12.24	13.12	13.38	14.92	8.12	8.39	9.26	9.52	11.06
	12H	12.11	12.35	13.26	13.48	15.05	8.23	8.47	9.38	9.60	11.18
12H	4H	11.13	11.47	12.27	12.60	14.12	7.41	7.75	8.54	8.88	10.40
	6H	11.73	12.00	12.87	13.13	14.67	7.98	8.25	9.12	9.38	10.92
	8H	11.95	12.19	13.09	13.32	14.89	8.18	8.42	9.33	9.55	11.13