

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: P909447

Luminaire Tested: DFN2DIP-SQ4F0-070D100US840-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P909447
REPORT IS A COMBINATION OF REPORTS P901654 AND P898471
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-070D100US840-RLLONL
Description: 4 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

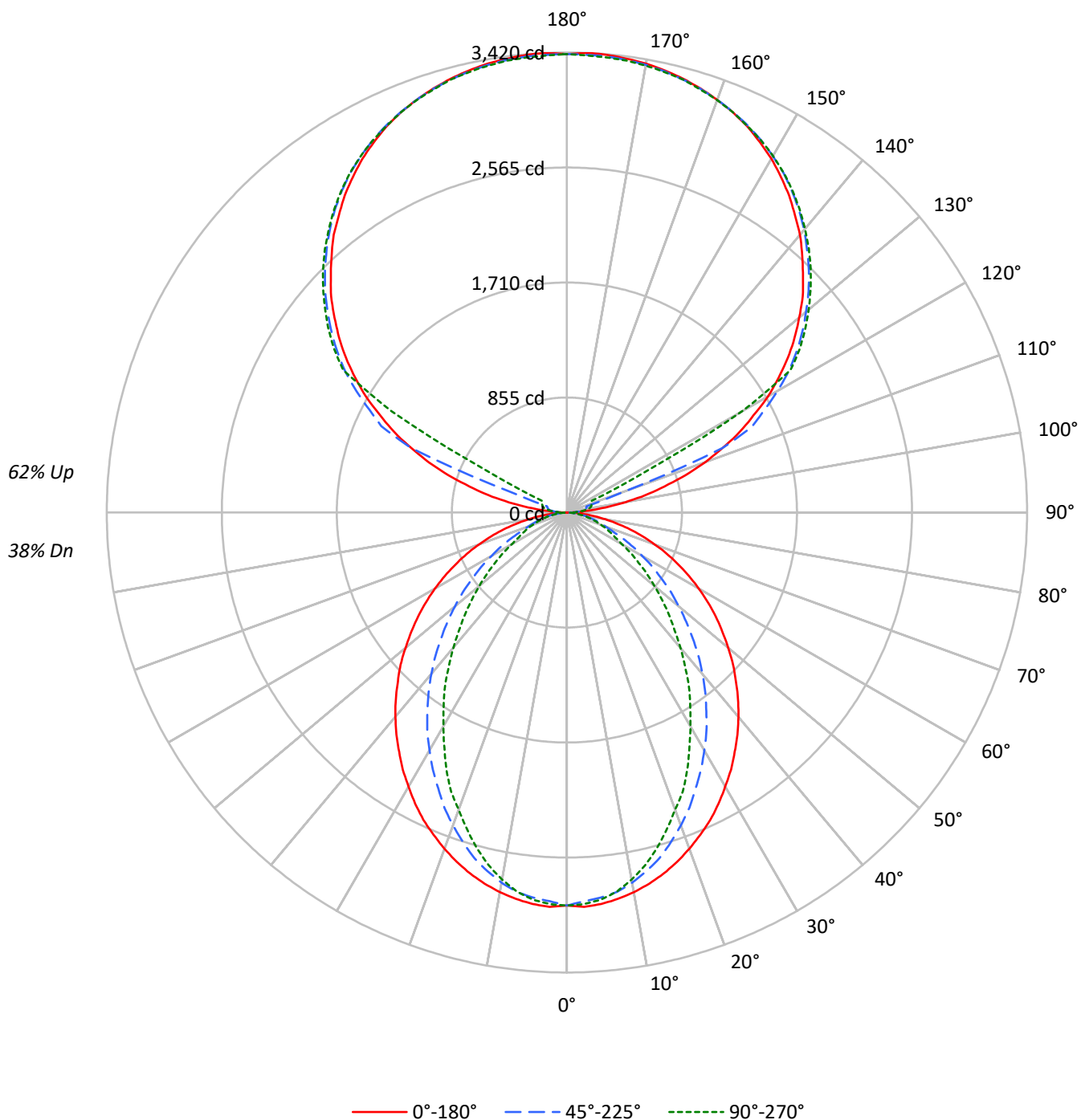
Lumens per Lamp: N/A
Luminaire Lumens: 16006.3 lumens
Efficiency: N/A
Efficacy: 117.7 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 136
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
RCR																	
0	104	104	104	104	95	95	95	95	76	76	76		60	60	60		45
1	95	91	88	84	86	83	80	77	67	65	63		53	52	51		40
2	87	80	74	69	79	73	68	64	60	56	53		47	45	43		36
3	80	71	64	58	72	64	58	54	53	48	45		42	39	37		32
4	73	63	55	49	66	57	51	46	47	42	39		38	34	32		29
5	67	56	48	42	61	51	44	39	42	37	33		34	30	28		26
6	62	50	43	37	56	46	39	34	38	33	29		31	27	24		24
7	57	45	38	32	52	42	35	30	35	30	26		28	24	22		22
8	53	41	34	29	48	38	31	27	32	27	23		26	22	19		20
9	49	38	30	26	45	35	28	24	29	24	21		24	20	17		19
10	46	35	28	23	42	32	26	21	27	22	19		22	18	16		17

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2050	2050	2050
5°	2053	2018	2031
10°	2033	1979	1965
15°	2005	1914	1864
20°	1968	1824	1739
25°	1930	1723	1618
30°	1879	1620	1465
35°	1829	1509	1330
40°	1778	1394	1176
45°	1719	1266	1036
50°	1658	1137	899
55°	1595	1000	768
60°	1521	855	633
65°	1436	709	570
70°	1333	572	517
75°	1204	505	472
80°	1017	425	411
85°	708	286	313

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 1825 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	273.8	1.7
10°-20°	751.7	4.7
20°-30°	1055.3	6.6
30°-40°	1150.4	7.2
40°-50°	1057.3	6.6
50°-60°	830.4	5.2
60°-70°	540.5	3.4
70°-80°	278.2	1.7
80°-90°	77.0	0.5
90°-100°	112.4	0.7
100°-110°	418.9	2.6
110°-120°	1111.1	6.9
120°-130°	1842.9	11.5
130°-140°	1957.5	12.2
140°-150°	1819.3	11.4
150°-160°	1462.7	9.1
160°-170°	942.5	5.9
170°-180°	324.4	2.0
0°-30°	2080.9	13.0
0°-40°	3231.2	20.2
0°-60°	5118.9	32.0
0°-90°	6014.6	37.6
90°-120°	1642.4	10.3
90°-150°	7262.1	45.4
90°-180°	9992.0	62.4
0°-180°	16006.3	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2922	2922	2922	2922	2922	
5°	2922	2908	2874	2898	2890	277
15°	2779	2750	2660	2610	2583	783
25°	2522	2438	2263	2155	2115	1160
35°	2173	2038	1806	1639	1581	1360
45°	1777	1600	1322	1134	1071	1372
55°	1351	1145	859	701	651	1207
65°	912	698	460	370	362	904
75°	486	301	212	193	190	515
85°	114	58	50	50	50	130
90°	2	30	49	62	66	15
95°	160	79	96	109	106	190
105°	750	824	151	177	187	801
115°	1418	1460	1522	380	202	1396
125°	2005	2037	2084	2101	2108	1788
135°	2481	2520	2542	2567	2562	1916
145°	2878	2876	2917	2935	2922	1800
155°	3169	3147	3176	3191	3172	1460
165°	3339	3324	3332	3349	3332	943
175°	3416	3398	3403	3420	3396	325
180°	3408	3408	3408	3408	3408	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2921.6	2921.6	2921.6	2921.6	2921.6
2.5°	2934.8	2921.6	2892.5	2919.1	2913.8
5°	2921.6	2908.4	2874.0	2897.8	2889.9
7.5°	2897.8	2882.1	2845.1	2855.4	2842.3
10°	2866.1	2847.6	2794.8	2786.7	2771.0
12.5°	2826.5	2802.7	2731.2	2715.4	2686.2
15°	2778.8	2749.7	2659.9	2609.7	2583.3
17.5°	2723.3	2681.0	2569.9	2511.7	2469.4
20°	2659.9	2606.9	2474.8	2408.8	2350.5
22.5°	2591.2	2530.3	2376.8	2287.0	2247.6
25°	2522.4	2437.7	2263.2	2155.0	2115.2
27.5°	2440.5	2350.5	2157.5	2033.3	1972.4
30°	2353.3	2252.6	2041.0	1906.4	1834.9
32.5°	2268.6	2146.9	1930.3	1771.5	1705.3
35°	2173.4	2038.5	1806.0	1639.4	1581.0
37.5°	2080.9	1935.3	1689.6	1506.9	1441.1
40°	1983.0	1824.5	1567.8	1380.2	1311.4
42.5°	1882.6	1713.4	1446.3	1250.5	1184.7
45°	1776.9	1599.5	1322.1	1134.2	1070.8
47.5°	1676.4	1488.7	1203.2	1015.2	957.2
50°	1565.3	1377.7	1086.7	904.1	848.9
52.5°	1456.7	1258.4	975.6	801.1	750.9
55°	1351.0	1144.8	859.2	700.7	650.6
57.5°	1242.7	1031.2	756.3	608.1	565.8
60°	1131.7	920.1	647.7	513.1	470.7
62.5°	1023.3	811.8	555.1	428.4	407.3
65°	912.2	697.9	460.1	370.3	362.1
67.5°	806.5	592.2	370.3	325.1	317.3
70°	695.4	489.2	306.6	280.2	269.5
72.5°	589.7	393.8	256.4	235.4	230.0
75°	486.5	301.2	211.5	193.0	190.5
77.5°	383.4	214.0	166.6	155.9	150.7
80°	288.1	153.4	126.8	116.4	116.4
82.5°	200.9	103.2	87.3	81.9	81.9
85°	113.6	58.1	50.2	50.2	50.2
87.5°	42.3	21.0	21.0	18.5	18.5
90°	2.3	29.6	49.2	61.8	66.4
92.5°	61.8	51.8	59.2	64.1	66.4
95°	160.2	78.8	96.0	108.7	106.0
97.5°	288.4	86.3	125.6	133.2	135.6
100°	436.7	98.7	140.6	160.2	165.2
102.5°	599.2	594.5	145.5	172.5	180.1
105°	749.7	823.7	150.6	177.4	187.4
107.5°	924.8	986.3	155.5	182.5	192.4
110°	1092.6	1144.2	431.6	185.1	194.7

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1250.4	1294.6	1252.8	189.8	197.4
115°	1418.0	1459.9	1521.7	379.8	202.4
117.5°	1563.5	1612.8	1654.9	1302.0	656.0
120°	1726.4	1763.2	1807.8	1837.3	1504.4
122.5°	1864.3	1903.8	1953.3	1967.9	1970.6
125°	2004.9	2037.1	2084.0	2101.2	2108.5
127.5°	2133.1	2167.7	2204.8	2229.5	2231.8
130°	2254.0	2293.6	2320.6	2347.7	2345.4
132.5°	2377.3	2409.5	2436.5	2458.7	2456.4
135°	2481.0	2520.5	2542.5	2567.4	2562.4
137.5°	2589.4	2619.0	2643.8	2668.5	2661.1
140°	2695.3	2715.3	2742.2	2764.5	2752.2
142.5°	2784.4	2801.7	2833.6	2853.2	2841.0
145°	2878.1	2875.5	2917.4	2934.7	2922.3
147.5°	2959.2	2951.9	2993.7	3006.1	2996.5
150°	3038.3	3021.0	3060.6	3075.2	3062.9
152.5°	3104.7	3085.1	3122.1	3136.9	3119.7
155°	3169.0	3146.9	3176.5	3191.2	3171.6
157.5°	3220.8	3201.2	3223.4	3240.7	3220.8
160°	3265.3	3250.4	3265.3	3279.9	3262.7
162.5°	3304.5	3289.8	3302.2	3319.4	3297.2
165°	3339.0	3324.4	3331.7	3349.0	3331.7
167.5°	3366.3	3351.3	3359.0	3376.3	3354.0
170°	3388.5	3373.7	3378.6	3395.9	3373.7
172.5°	3403.1	3388.5	3393.6	3410.8	3388.5
175°	3415.5	3398.2	3403.1	3420.5	3395.9
177.5°	3420.5	3403.1	3405.9	3423.1	3400.8
180°	3408.2	3408.2	3408.2	3408.2	3408.2

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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	8.37	9.11	9.43	10.17	11.61	4.33	5.07	5.39	6.13	7.57
	3H	10.05	10.71	11.12	11.78	13.23	5.51	6.17	6.59	7.24	8.70
	4H	10.65	11.28	11.74	12.35	13.82	5.96	6.59	7.04	7.66	9.12
	6H	11.07	11.65	12.17	12.72	14.20	6.28	6.85	7.37	7.93	9.40
	8H	11.20	11.75	12.30	12.84	14.31	6.37	6.91	7.46	8.00	9.47
	12H	11.26	11.78	12.36	12.86	14.36	6.41	6.93	7.51	8.01	9.50
4H	2H	8.38	9.00	9.47	10.08	11.54	4.92	5.54	6.01	6.61	8.08
	3H	10.20	10.72	11.30	11.82	13.30	6.26	6.78	7.36	7.88	9.36
	4H	10.90	11.37	12.00	12.46	13.96	6.81	7.28	7.91	8.37	9.87
	6H	11.41	11.82	12.52	12.93	14.42	7.22	7.63	8.33	8.74	10.23
	8H	11.59	11.97	12.69	13.07	14.58	7.35	7.73	8.46	8.83	10.34
	12H	11.68	12.02	12.80	13.14	14.65	7.41	7.75	8.54	8.87	10.38
8H	4H	10.86	11.24	11.97	12.34	13.85	7.08	7.46	8.19	8.57	10.08
	6H	11.42	11.74	12.55	12.88	14.39	7.60	7.91	8.73	9.06	10.56
	8H	11.64	11.92	12.78	13.05	14.57	7.79	8.06	8.93	9.19	10.72
	12H	11.78	12.02	12.92	13.15	14.71	7.91	8.15	9.04	9.27	10.83
12H	4H	10.80	11.15	11.93	12.27	13.78	7.08	7.43	8.21	8.54	10.06
	6H	11.40	11.67	12.54	12.80	14.33	7.65	7.92	8.78	9.05	10.58
	8H	11.62	11.86	12.76	12.98	14.55	7.86	8.10	9.00	9.22	10.78