

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: P920399

Luminaire Tested: DFN2DIP-SQ4F0-080D110US935-RLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P920399
REPORT IS A COMBINATION OF REPORTS P901674 AND P898471
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-080D110US935-RLLONL
Description: 4 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

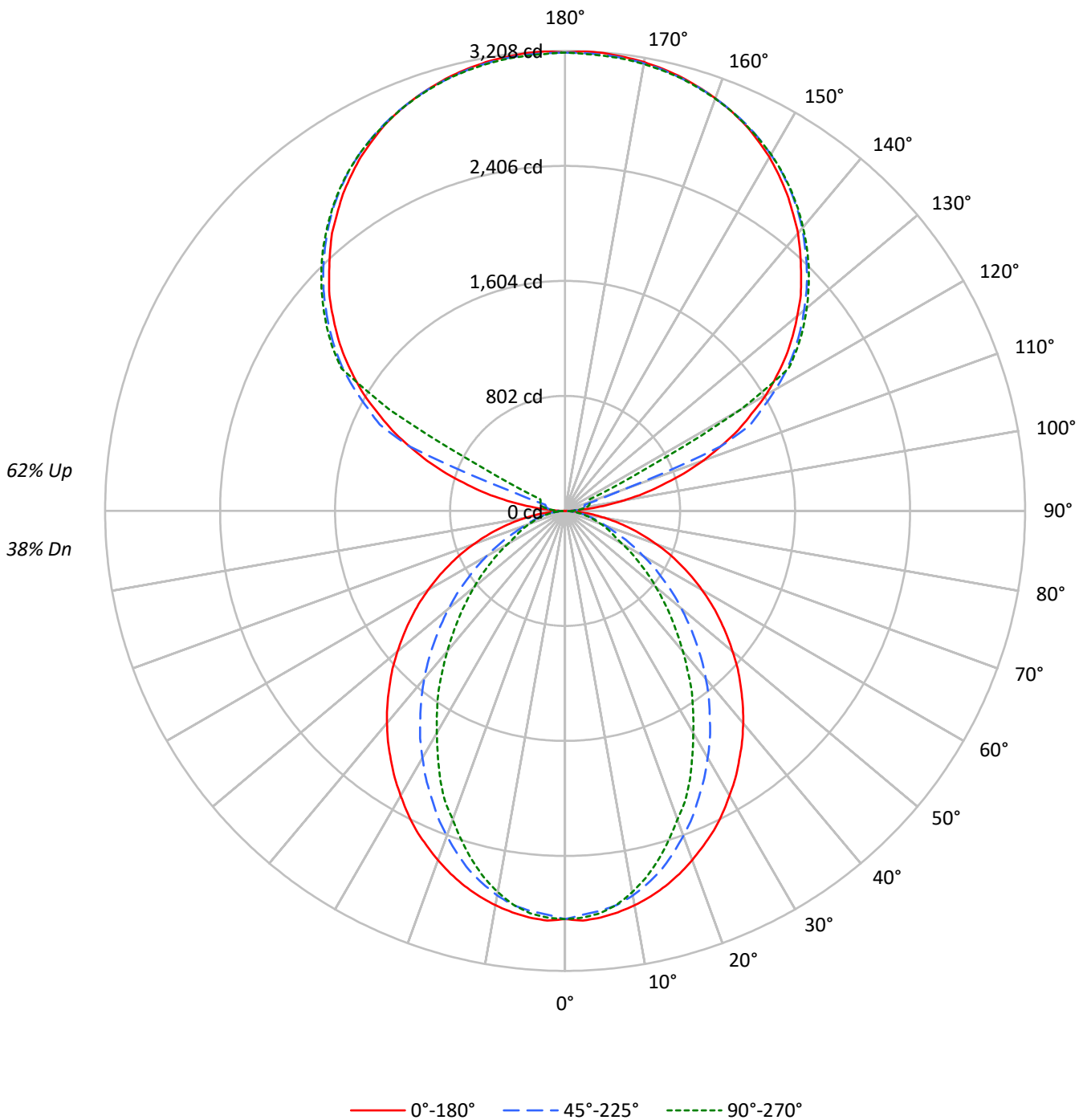
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 15231.0 lumens
Efficiency: N/A
Efficacy: 98.8 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): 154.2
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				20	
RC	80				70				50				30				10				0	
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	0	
RCR																						
0	104	104	104	104	95	95	95	95	77	77	77	61	61	61	46	46	46	38				38
1	96	91	88	84	87	83	80	77	68	66	64	54	52	51	41	40	39	33				33
2	87	80	74	70	79	73	68	64	60	56	53	48	45	43	36	35	34	28				28
3	80	71	64	58	72	65	59	54	53	49	45	42	39	37	33	31	29	24				24
4	73	63	55	50	66	58	51	46	47	43	39	38	35	32	29	27	25	21				21
5	67	56	48	43	61	51	45	40	43	38	34	34	31	28	27	24	22	19				19
6	62	50	43	37	56	46	39	35	38	33	30	31	27	25	24	22	20	17				17
7	57	46	38	33	52	42	35	30	35	30	26	28	25	22	22	20	18	15				15
8	53	41	34	29	48	38	32	27	32	27	23	26	22	20	20	18	16	13				13
9	50	38	31	26	45	35	28	24	29	24	21	24	20	18	19	16	14	12				12
10	46	35	28	23	42	32	26	22	27	22	19	22	19	16	18	15	13	11				11

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1998	1998	1998
5°	2001	1966	1979
10°	1981	1928	1915
15°	1954	1865	1816
20°	1918	1777	1694
25°	1880	1679	1577
30°	1831	1578	1428
35°	1782	1470	1296
40°	1733	1358	1146
45°	1675	1234	1010
50°	1616	1108	876
55°	1554	974	748
60°	1482	834	616
65°	1399	691	555
70°	1299	558	504
75°	1173	492	459
80°	991	415	400
85°	690	279	305

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°
 Vertical Angle: 90°
 Luminance: 1712 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	266.8	1.8
10°-20°	732.4	4.8
20°-30°	1028.3	6.8
30°-40°	1120.9	7.4
40°-50°	1030.3	6.8
50°-60°	809.1	5.3
60°-70°	526.6	3.5
70°-80°	271.1	1.8
80°-90°	74.8	0.5
90°-100°	105.4	0.7
100°-110°	392.9	2.6
110°-120°	1042.0	6.8
120°-130°	1728.3	11.3
130°-140°	1835.9	12.1
140°-150°	1706.2	11.2
150°-160°	1371.8	9.0
160°-170°	883.9	5.8
170°-180°	304.2	2.0
0°-30°	2027.6	13.3
0°-40°	3148.5	20.7
0°-60°	4987.8	32.7
0°-90°	5860.4	38.5
90°-120°	1540.3	10.1
90°-150°	6810.7	44.7
90°-180°	9371.0	61.5
0°-180°	15231.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2847	2847	2847	2847	2847	
5°	2847	2834	2800	2824	2816	270
15°	2708	2679	2592	2543	2517	763
25°	2458	2375	2205	2100	2061	1130
35°	2118	1986	1760	1597	1540	1326
45°	1731	1559	1288	1105	1043	1337
55°	1316	1116	837	683	634	1176
65°	889	680	448	361	353	881
75°	474	294	206	188	186	501
85°	111	57	49	49	49	127
90°	2	28	46	58	62	14
95°	150	74	90	102	99	178
105°	703	773	141	166	176	751
115°	1330	1369	1427	356	190	1309
125°	1880	1910	1954	1971	1978	1677
135°	2327	2364	2384	2408	2403	1797
145°	2699	2697	2736	2752	2741	1688
155°	2972	2951	2979	2993	2974	1370
165°	3132	3118	3125	3141	3125	885
175°	3203	3187	3192	3208	3185	305
180°	3196	3196	3196	3196	3196	



TEST NUMBER: P920399

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2846.8	2846.8	2846.8	2846.8	2846.8
2.5°	2859.6	2846.8	2818.4	2844.3	2839.1
5°	2846.8	2834.0	2800.3	2823.6	2815.9
7.5°	2823.6	2808.2	2772.2	2782.3	2769.4
10°	2792.6	2774.7	2723.3	2715.3	2700.0
12.5°	2754.2	2730.9	2661.2	2645.8	2617.4
15°	2707.7	2679.3	2591.8	2542.9	2517.1
17.5°	2653.5	2612.3	2504.0	2447.5	2406.1
20°	2591.8	2540.1	2411.4	2347.2	2290.3
22.5°	2524.8	2465.5	2316.0	2228.5	2189.9
25°	2457.8	2375.3	2205.3	2099.8	2061.0
27.5°	2378.0	2290.3	2102.2	1981.2	1921.8
30°	2293.0	2194.9	1988.8	1857.6	1787.9
32.5°	2210.4	2091.9	1880.8	1726.1	1661.6
35°	2117.8	1986.3	1759.7	1597.4	1540.5
37.5°	2027.6	1885.8	1646.3	1468.3	1404.1
40°	1932.3	1777.8	1527.7	1344.8	1277.8
42.5°	1834.4	1669.6	1409.3	1218.6	1154.3
45°	1731.3	1558.6	1288.2	1105.1	1043.4
47.5°	1633.5	1450.6	1172.3	989.2	932.6
50°	1525.2	1342.4	1058.9	881.0	827.1
52.5°	1419.4	1226.1	950.6	780.7	731.8
55°	1316.4	1115.5	837.2	682.8	633.9
57.5°	1210.9	1004.8	736.9	592.6	551.3
60°	1102.6	896.6	631.1	499.9	458.7
62.5°	997.1	791.0	541.0	417.4	396.9
65°	888.9	680.0	448.2	360.8	352.8
67.5°	785.8	577.0	360.8	316.8	309.2
70°	677.6	476.7	298.8	273.0	262.7
72.5°	574.5	383.7	249.9	229.4	224.1
75°	474.0	293.6	206.1	188.0	185.6
77.5°	373.7	208.5	162.4	152.0	146.8
80°	280.7	149.6	123.6	113.4	113.4
82.5°	195.7	100.6	85.0	79.8	79.8
85°	110.7	56.6	48.9	48.9	48.9
87.5°	41.2	20.5	20.5	18.1	18.1
90°	2.2	27.7	46.1	57.9	62.3
92.5°	57.9	48.6	55.4	60.2	62.3
95°	150.2	73.9	90.1	101.9	99.4
97.5°	270.5	81.0	117.8	124.9	127.2
100°	409.5	92.6	131.8	150.2	154.9
102.5°	561.9	557.5	136.5	161.8	168.9
105°	703.1	772.6	141.2	166.4	175.8
107.5°	867.4	925.0	145.9	171.1	180.5
110°	1024.7	1073.1	404.8	173.6	182.6



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1172.8	1214.2	1174.9	178.0	185.1
115°	1329.8	1369.1	1427.1	356.2	189.8
117.5°	1466.4	1512.5	1552.0	1221.1	615.2
120°	1619.0	1653.6	1695.4	1723.1	1410.8
122.5°	1748.4	1785.5	1831.9	1845.6	1848.1
125°	1880.2	1910.5	1954.4	1970.6	1977.5
127.5°	2000.5	2032.9	2067.8	2090.8	2093.1
130°	2113.9	2151.0	2176.3	2201.8	2199.7
132.5°	2229.6	2259.8	2285.1	2305.9	2303.8
135°	2326.8	2363.9	2384.4	2407.9	2403.1
137.5°	2428.4	2456.2	2479.5	2502.6	2495.7
140°	2527.9	2546.5	2571.8	2592.6	2581.1
142.5°	2611.3	2627.5	2657.5	2675.9	2664.4
145°	2699.2	2696.7	2736.0	2752.3	2740.7
147.5°	2775.3	2768.5	2807.7	2819.3	2810.2
150°	2849.5	2833.3	2870.3	2884.1	2872.5
152.5°	2911.8	2893.4	2928.0	2942.0	2925.8
155°	2972.0	2951.3	2979.1	2992.8	2974.4
157.5°	3020.6	3002.1	3023.0	3039.2	3020.6
160°	3062.3	3048.3	3062.3	3076.0	3059.8
162.5°	3099.1	3085.4	3096.9	3113.1	3092.3
165°	3131.5	3117.8	3124.6	3140.8	3124.6
167.5°	3157.0	3143.1	3150.2	3166.4	3145.6
170°	3177.9	3163.9	3168.6	3184.8	3163.9
172.5°	3191.6	3177.9	3182.6	3198.8	3177.9
175°	3203.2	3187.0	3191.6	3207.9	3184.8
177.5°	3207.9	3191.6	3194.1	3210.3	3189.5
180°	3196.4	3196.4	3196.4	3196.4	3196.4



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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	8.38	9.13	9.44	10.18	11.61	4.34	5.09	5.40	6.14	7.57
	3H	10.06	10.72	11.12	11.79	13.24	5.53	6.19	6.59	7.26	8.70
	4H	10.67	11.30	11.74	12.36	13.82	5.97	6.60	7.05	7.67	9.12
	6H	11.09	11.67	12.17	12.74	14.20	6.29	6.87	7.38	7.94	9.41
	8H	11.21	11.76	12.30	12.85	14.31	6.38	6.93	7.47	8.02	9.48
	12H	11.27	11.80	12.37	12.88	14.36	6.42	6.94	7.51	8.02	9.51
4H	2H	8.39	9.02	9.47	10.09	11.54	4.93	5.56	6.01	6.63	8.08
	3H	10.22	10.74	11.31	11.84	13.30	6.27	6.80	7.36	7.89	9.36
	4H	10.91	11.39	12.00	12.47	13.96	6.82	7.30	7.91	8.38	9.87
	6H	11.42	11.84	12.53	12.94	14.42	7.24	7.65	8.34	8.75	10.24
	8H	11.60	11.98	12.70	13.08	14.58	7.36	7.75	8.47	8.85	10.34
	12H	11.69	12.04	12.81	13.15	14.66	7.42	7.77	8.54	8.88	10.39
8H	4H	10.87	11.26	11.97	12.35	13.85	7.10	7.48	8.20	8.58	10.08
	6H	11.44	11.76	12.56	12.90	14.39	7.61	7.93	8.74	9.07	10.57
	8H	11.66	11.94	12.79	13.06	14.57	7.80	8.08	8.94	9.20	10.72
	12H	11.80	12.04	12.93	13.16	14.71	7.92	8.16	9.05	9.28	10.83
12H	4H	10.82	11.17	11.94	12.28	13.78	7.10	7.45	8.22	8.56	10.06
	6H	11.41	11.69	12.55	12.81	14.33	7.66	7.94	8.79	9.06	10.58
	8H	11.63	11.88	12.77	13.00	14.55	7.87	8.11	9.00	9.23	10.78