

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: P923299

Luminaire Tested: DFN2DIP-SQ4F0-140D090US940-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P923299
REPORT IS A COMBINATION OF REPORTS P901648 AND P898471
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-140D090US940-RLLONL
Description: 4 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

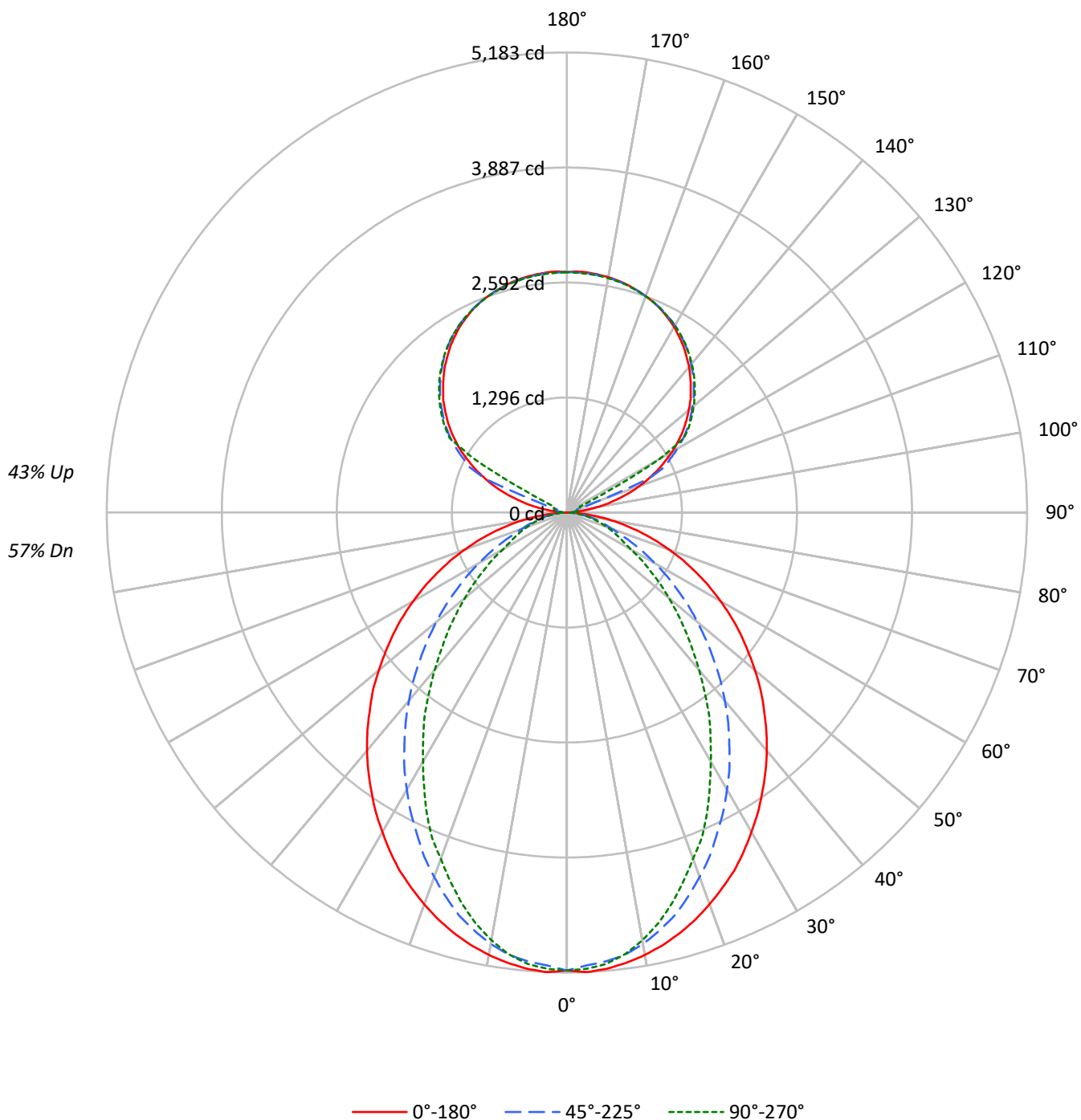
Lumens per Lamp: N/A
Luminaire Lumens: 18556.5 lumens
Efficiency: N/A
Efficacy: 88.2 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 210.5
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9789
Total Harmonic Distortion (THDi): 0.074
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	109	109	109	109	101	101	101	101	87	87	87	75	75	75	63	63	63
1	100	96	92	89	93	89	86	83	77	75	73	66	65	63	56	55	54
2	91	84	78	73	85	79	74	69	69	65	61	59	56	54	50	48	46
3	84	75	67	62	78	70	64	59	61	56	52	53	49	46	45	42	40
4	77	66	59	53	72	62	55	50	55	49	45	47	43	40	41	38	35
5	71	60	52	46	66	56	49	44	49	44	39	43	38	35	37	34	31
6	66	54	46	40	61	51	43	38	45	39	35	39	34	31	34	30	28
7	61	49	41	35	57	46	39	34	41	35	31	36	31	28	31	27	25
8	57	44	37	31	53	42	35	30	37	32	27	33	28	25	29	25	22
9	53	41	33	28	49	38	32	27	34	29	25	30	26	23	26	23	20
10	49	37	30	26	46	35	29	25	32	26	23	28	24	21	25	21	19

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3620	3620	3620
5°	3626	3564	3587
10°	3590	3494	3471
15°	3541	3380	3292
20°	3475	3221	3071
25°	3408	3043	2858
30°	3318	2861	2587
35°	3230	2665	2350
40°	3140	2462	2077
45°	3036	2236	1830
50°	2928	2008	1588
55°	2816	1765	1356
60°	2686	1511	1117
65°	2536	1252	1007
70°	2354	1010	913
75°	2126	892	833
80°	1796	751	726
85°	1250	505	552

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 3036 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	483.6	2.6
10°-20°	1327.5	7.2
20°-30°	1863.7	10.0
30°-40°	2031.6	10.9
40°-50°	1867.3	10.1
50°-60°	1466.4	7.9
60°-70°	954.5	5.1
70°-80°	491.3	2.6
80°-90°	130.2	0.7
90°-100°	89.3	0.5
100°-110°	332.9	1.8
110°-120°	883.0	4.8
120°-130°	1464.5	7.9
130°-140°	1555.6	8.4
140°-150°	1445.8	7.8
150°-160°	1162.4	6.3
160°-170°	749.0	4.0
170°-180°	257.8	1.4
0°-30°	3674.8	19.8
0°-40°	5706.4	30.8
0°-60°	9040.1	48.7
0°-90°	10616.1	57.2
90°-120°	1305.2	7.0
90°-150°	5771.2	31.1
90°-180°	7940.0	42.8
0°-180°	18556.5	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	5160	5160	5160	5160	5160	
5°	5160	5136	5075	5118	5104	489
15°	4907	4856	4697	4609	4562	1383
25°	4455	4305	3997	3806	3735	2049
35°	3838	3600	3189	2895	2792	2402
45°	3138	2825	2335	2003	1891	2423
55°	2386	2022	1517	1238	1149	2132
65°	1611	1232	812	654	640	1597
75°	859	532	374	341	336	909
85°	201	102	89	89	89	230
90°	2	24	39	49	53	17
95°	127	63	76	86	84	151
105°	596	655	120	141	149	637
115°	1127	1160	1209	302	161	1109
125°	1593	1619	1656	1670	1676	1421
135°	1972	2003	2020	2040	2036	1523
145°	2287	2285	2318	2332	2322	1431
155°	2518	2501	2524	2536	2520	1161
165°	2654	2642	2648	2662	2648	750
175°	2714	2700	2705	2718	2699	258
180°	2708	2708	2708	2708	2708	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	5159.6	5159.6	5159.6	5159.6	5159.6
2.5°	5182.9	5159.6	5108.1	5155.2	5145.7
5°	5159.6	5136.3	5075.3	5117.5	5103.6
7.5°	5117.5	5089.7	5024.3	5042.7	5019.4
10°	5061.5	5028.8	4935.7	4921.3	4893.5
12.5°	4991.6	4949.5	4823.2	4795.4	4744.0
15°	4907.4	4855.9	4697.4	4608.7	4562.2
17.5°	4809.4	4734.5	4538.4	4435.8	4361.0
20°	4697.4	4603.7	4370.5	4254.0	4151.0
22.5°	4576.0	4468.5	4197.5	4039.0	3969.2
25°	4454.6	4305.0	3996.9	3805.6	3735.3
27.5°	4310.0	4151.0	3810.1	3590.7	3483.2
30°	4155.9	3978.1	3604.6	3366.7	3240.4
32.5°	4006.3	3791.3	3408.8	3128.5	3011.6
35°	3838.4	3600.1	3189.4	2895.1	2792.0
37.5°	3674.9	3417.7	2983.8	2661.3	2544.9
40°	3502.0	3222.1	2768.8	2437.4	2316.0
42.5°	3324.7	3025.9	2554.3	2208.5	2092.0
45°	3137.8	2824.8	2334.9	2002.9	1891.0
47.5°	2960.5	2629.1	2124.8	1792.9	1690.3
50°	2764.3	2432.9	1919.1	1596.7	1499.1
52.5°	2572.6	2222.3	1723.0	1414.9	1326.2
55°	2385.9	2021.7	1517.4	1237.5	1148.8
57.5°	2194.6	1821.1	1335.6	1074.1	999.3
60°	1998.4	1624.9	1143.9	906.1	831.3
62.5°	1807.2	1433.7	980.4	756.4	719.3
65°	1611.1	1232.5	812.4	653.9	639.5
67.5°	1424.2	1045.8	653.9	574.2	560.3
70°	1228.1	864.0	541.4	494.9	476.1
72.5°	1041.3	695.5	452.8	415.6	406.3
75°	859.0	532.1	373.5	340.8	336.4
77.5°	677.3	378.0	294.3	275.4	266.0
80°	508.8	271.0	223.9	205.6	205.6
82.5°	354.7	182.3	154.1	144.6	144.6
85°	200.6	102.5	88.6	88.6	88.6
87.5°	74.8	37.2	37.2	32.7	32.7
90°	1.9	23.5	39.1	49.1	52.8
92.5°	49.1	41.2	47.0	51.0	52.8
95°	127.3	62.6	76.3	86.3	84.3
97.5°	229.3	68.7	99.9	105.8	107.7
100°	347.0	78.5	111.7	127.3	131.3
102.5°	476.2	472.4	115.7	137.1	143.1
105°	595.8	654.7	119.6	141.1	148.9
107.5°	734.9	783.8	123.6	145.0	152.9
110°	868.3	909.3	343.0	147.0	154.8



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	993.7	1028.9	995.6	150.8	156.9
115°	1126.9	1160.1	1209.2	301.8	160.8
117.5°	1242.5	1281.7	1315.1	1034.7	521.3
120°	1371.9	1401.2	1436.6	1460.1	1195.5
122.5°	1481.6	1513.0	1552.3	1563.9	1566.0
125°	1593.2	1618.8	1656.1	1669.8	1675.6
127.5°	1695.1	1722.6	1752.2	1771.7	1773.6
130°	1791.3	1822.7	1844.1	1865.7	1863.9
132.5°	1889.3	1914.9	1936.3	1954.0	1952.1
135°	1971.7	2003.0	2020.5	2040.3	2036.4
137.5°	2057.8	2081.3	2101.0	2120.6	2114.8
140°	2142.0	2157.8	2179.3	2196.9	2187.2
142.5°	2212.8	2226.5	2251.8	2267.4	2257.7
145°	2287.2	2285.1	2318.4	2332.2	2322.4
147.5°	2351.7	2345.9	2379.2	2389.0	2381.2
150°	2414.6	2400.8	2432.2	2443.8	2434.1
152.5°	2467.4	2451.8	2481.1	2493.0	2479.2
155°	2518.4	2500.9	2524.3	2536.0	2520.4
157.5°	2559.6	2544.0	2561.6	2575.3	2559.6
160°	2594.9	2583.0	2594.9	2606.6	2592.8
162.5°	2626.1	2614.4	2624.2	2637.9	2620.3
165°	2653.6	2641.9	2647.8	2661.5	2647.8
167.5°	2675.2	2663.4	2669.3	2683.1	2665.4
170°	2692.9	2681.0	2684.9	2698.7	2681.0
172.5°	2704.6	2692.9	2696.8	2710.5	2692.9
175°	2714.3	2700.5	2704.6	2718.2	2698.7
177.5°	2718.2	2704.6	2706.6	2720.3	2702.7
180°	2708.5	2708.5	2708.5	2708.5	2708.5

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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	12.28	13.17	13.18	14.08	15.25	8.24	9.13	9.14	10.05	11.21
	3H	13.96	14.76	14.88	15.69	16.88	9.43	10.23	10.34	11.15	12.35
	4H	14.58	15.33	15.51	16.26	17.46	9.89	10.64	10.81	11.57	12.77
	6H	15.01	15.70	15.95	16.64	17.85	10.21	10.91	11.15	11.84	13.05
	8H	15.14	15.80	16.08	16.75	17.96	10.30	10.96	11.25	11.92	13.13
	12H	15.20	15.83	16.15	16.78	18.01	10.35	10.98	11.30	11.92	13.16
4H	2H	12.30	13.06	13.24	13.99	15.19	8.84	9.60	9.78	10.53	11.73
	3H	14.14	14.77	15.09	15.73	16.95	10.20	10.83	11.14	11.79	13.00
	4H	14.84	15.41	15.79	16.37	17.61	10.75	11.32	11.70	12.28	13.52
	6H	15.36	15.86	16.33	16.83	18.07	11.18	11.67	12.14	12.64	13.89
	8H	15.54	16.00	16.51	16.97	18.23	11.31	11.76	12.27	12.74	13.99
	12H	15.64	16.06	16.63	17.05	18.30	11.37	11.79	12.36	12.78	14.04
8H	4H	14.81	15.27	15.78	16.24	17.50	11.04	11.50	12.01	12.47	13.72
	6H	15.39	15.77	16.38	16.78	18.03	11.56	11.94	12.55	12.95	14.21
	8H	15.61	15.94	16.61	16.94	18.21	11.75	12.09	12.75	13.09	14.36
	12H	15.75	16.05	16.75	17.04	18.36	11.88	12.17	12.88	13.16	14.48
12H	4H	14.77	15.18	15.75	16.17	17.43	11.05	11.46	12.03	12.45	13.71
	6H	15.36	15.70	16.36	16.70	17.97	11.61	11.95	12.61	12.95	14.22
	8H	15.59	15.88	16.59	16.88	18.20	11.83	12.12	12.83	13.12	14.43