

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: P923310

Luminaire Tested: DFN2DIP-SQ4F0-140D120US940-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P923310
REPORT IS A COMBINATION OF REPORTS P900182 AND P896915
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-140D120US940-RLLFLL
Description: 4 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

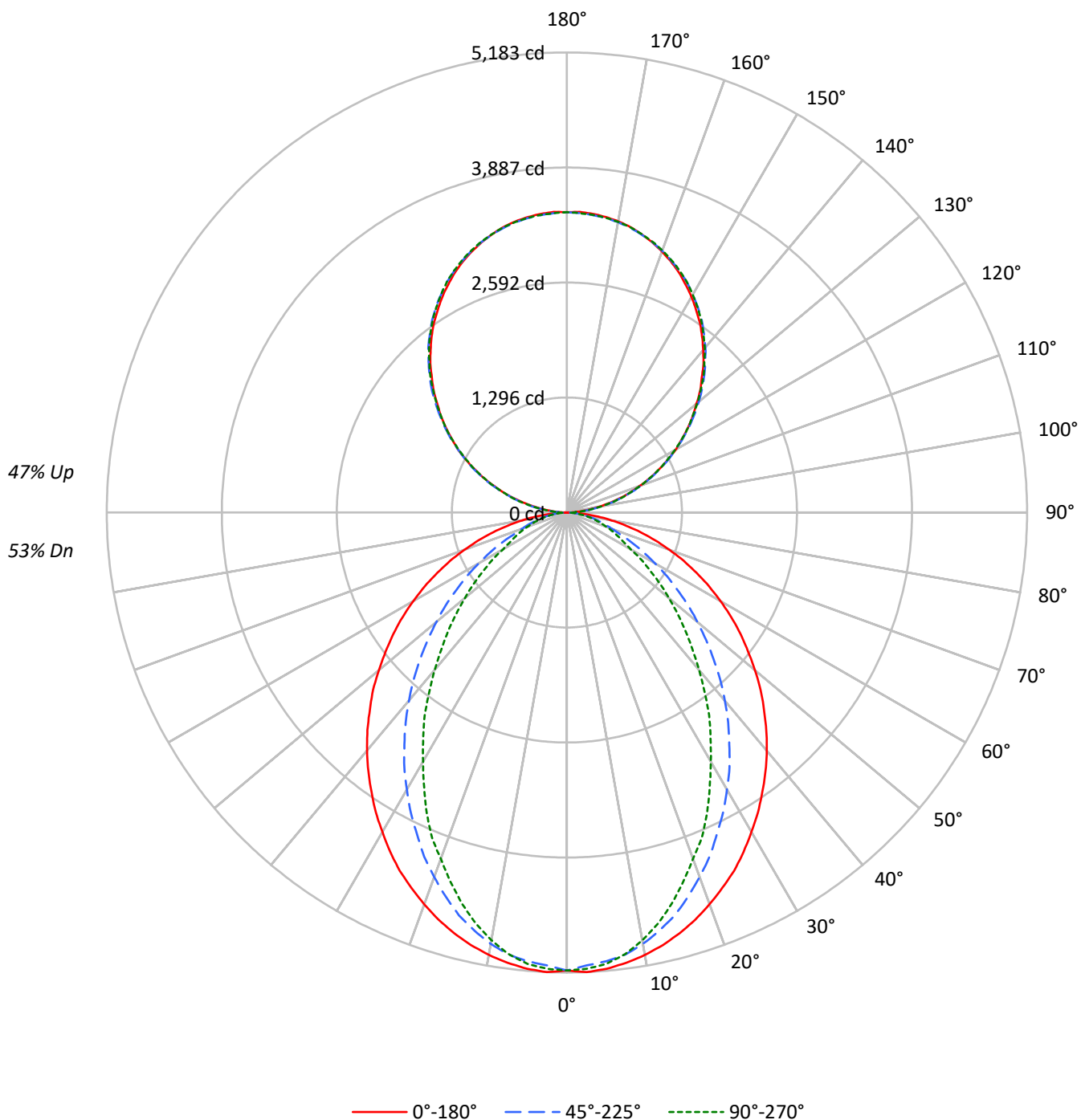
Lumens per Lamp: N/A
Luminaire Lumens: 20081.3 lumens
Efficiency: N/A
Efficacy: 85.9 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 233.9
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	108	108	108	108	100	100	100	100	85	85	85	71	71	71	59	59	59
1	99	95	91	88	92	88	85	82	75	73	71	64	62	60	53	52	51
2	91	83	77	72	84	78	72	68	67	63	59	56	54	51	47	45	43
3	83	74	67	61	77	69	62	57	59	54	51	50	47	44	42	40	38
4	76	66	58	52	70	61	54	49	53	48	44	45	41	38	38	35	33
5	70	59	51	45	65	55	48	43	48	42	38	41	37	33	34	31	29
6	65	53	45	39	60	50	42	37	43	38	33	37	33	30	31	28	26
7	60	48	40	35	56	45	38	33	39	34	30	34	30	26	29	26	23
8	56	44	36	31	52	41	34	29	36	30	27	31	27	24	27	23	21
9	52	40	33	28	48	38	31	26	33	28	24	29	24	21	25	21	19
10	49	37	30	25	45	35	28	24	31	25	22	27	22	19	23	20	17

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	2.4
10°-20°	1327.5	6.6
20°-30°	1863.7	9.3
30°-40°	2031.6	10.1
40°-50°	1867.3	9.3
50°-60°	1466.4	7.3
60°-70°	954.5	4.8
70°-80°	491.3	2.4
80°-90°	135.0	0.7
90°-100°	209.4	1.0
100°-110°	665.4	3.3
110°-120°	1138.7	5.7
120°-130°	1497.5	7.5
130°-140°	1680.9	8.4
140°-150°	1648.3	8.2
150°-160°	1382.7	6.9
160°-170°	917.0	4.6
170°-180°	320.5	1.6
0°-30°	3674.8	18.3
0°-40°	5706.4	28.4
0°-60°	9040.1	45.0
0°-90°	10620.9	52.9
90°-120°	2013.4	10.0
90°-150°	6840.1	34.1
90°-180°	9460.0	47.1
0°-180°	20081.3	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°	3	37	100	94	97	20
95°	149	178	183	183	178	166
105°	614	622	628	634	634	648
115°	1143	1159	1154	1151	1143	1130
125°	1662	1688	1679	1670	1667	1485
135°	2150	2181	2188	2184	2176	1662
145°	2610	2630	2646	2650	2638	1631
155°	2984	2992	3002	3016	3007	1374
165°	3246	3243	3243	3264	3250	916
175°	3378	3370	3364	3384	3367	321
180°	3384	3384	3384	3384	3384	

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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°	3.0	36.7	100.0	93.9	96.9
92.5°	63.2	85.7	88.7	91.8	91.8
95°	148.9	177.5	182.6	182.6	177.5
97.5°	247.9	274.5	285.7	285.7	285.7
100°	362.2	385.7	393.8	393.8	390.7
102.5°	482.6	499.9	511.1	514.2	511.1
105°	614.2	622.3	628.5	633.6	633.6
107.5°	744.8	757.1	757.1	759.0	744.8
110°	871.3	887.6	887.6	887.6	879.5



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1008.0	1025.4	1022.3	1014.1	1008.0
115°	1142.6	1159.0	1153.9	1150.8	1142.6
117.5°	1276.3	1298.8	1284.5	1276.3	1268.2
120°	1411.0	1433.4	1411.0	1411.0	1401.9
122.5°	1533.5	1562.0	1547.7	1539.5	1533.5
125°	1662.0	1687.5	1679.4	1670.2	1667.1
127.5°	1787.5	1819.1	1807.9	1795.6	1787.5
130°	1904.8	1941.5	1936.4	1930.3	1919.0
132.5°	2036.4	2065.0	2067.0	2052.7	2044.6
135°	2149.6	2181.3	2187.5	2184.3	2176.2
137.5°	2276.2	2301.7	2306.8	2304.7	2292.5
140°	2387.4	2412.9	2427.1	2427.1	2415.9
142.5°	2501.7	2527.2	2535.3	2538.3	2527.2
145°	2609.8	2630.2	2646.5	2649.6	2638.4
147.5°	2706.7	2732.2	2744.5	2749.6	2738.4
150°	2806.7	2824.0	2835.3	2844.5	2835.3
152.5°	2895.5	2912.8	2927.1	2938.4	2927.1
155°	2984.2	2992.4	3001.6	3015.9	3006.7
157.5°	3060.8	3066.9	3071.9	3092.4	3078.1
160°	3129.1	3135.3	3138.3	3155.7	3143.4
162.5°	3192.3	3192.3	3195.4	3214.8	3200.5
165°	3246.4	3243.4	3243.4	3263.7	3249.5
167.5°	3295.4	3286.2	3286.2	3306.6	3292.4
170°	3332.1	3323.9	3320.9	3341.3	3323.9
172.5°	3357.6	3349.4	3346.4	3366.8	3349.4
175°	3378.1	3369.9	3363.8	3384.1	3366.8
177.5°	3389.3	3381.1	3374.9	3392.3	3374.9
180°	3384.1	3384.1	3384.1	3384.1	3384.1

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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	11.89	12.75	12.83	13.70	14.93	7.86	8.71	8.79	9.66	10.89
	3H	13.58	14.34	14.53	15.30	16.56	9.05	9.81	10.00	10.77	12.03
	4H	14.19	14.91	15.16	15.88	17.14	9.50	10.22	10.46	11.19	12.45
	6H	14.62	15.28	15.59	16.25	17.53	9.82	10.49	10.80	11.46	12.73
	8H	14.75	15.38	15.73	16.37	17.64	9.91	10.54	10.90	11.53	12.81
	12H	14.81	15.41	15.80	16.39	17.69	9.96	10.56	10.94	11.54	12.84
4H	2H	11.92	12.64	12.89	13.60	14.87	8.46	9.18	9.43	10.14	11.41
	3H	13.75	14.35	14.73	15.35	16.62	9.81	10.41	10.79	11.40	12.68
	4H	14.45	15.00	15.44	15.98	17.29	10.36	10.91	11.35	11.89	13.20
	6H	14.97	15.44	15.97	16.45	17.75	10.78	11.25	11.78	12.26	13.56
	8H	15.15	15.59	16.15	16.59	17.91	10.91	11.35	11.91	12.35	13.67
	12H	15.25	15.64	16.27	16.66	17.98	10.98	11.37	12.00	12.39	13.71
8H	4H	14.42	14.86	15.42	15.86	17.18	10.64	11.08	11.65	12.09	13.40
	6H	14.99	15.35	16.02	16.40	17.71	11.16	11.53	12.19	12.57	13.89
	8H	15.21	15.53	16.24	16.56	17.89	11.36	11.68	12.39	12.71	14.04
	12H	15.35	15.63	16.39	16.66	18.04	11.48	11.76	12.51	12.78	14.16
12H	4H	14.37	14.77	15.39	15.79	17.11	10.65	11.05	11.67	12.07	13.39
	6H	14.97	15.29	16.00	16.32	17.65	11.21	11.53	12.25	12.57	13.90
	8H	15.19	15.47	16.23	16.50	17.87	11.43	11.71	12.46	12.74	14.11

END OF REPORT