

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: P920540

Luminaire Tested: DFN2DIP-SQ4F0-120D110US935-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P920540
REPORT IS A COMBINATION OF REPORTS P900161 AND P896915
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-120D110US935-FLLFLL
Description: 4 foot, Square Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

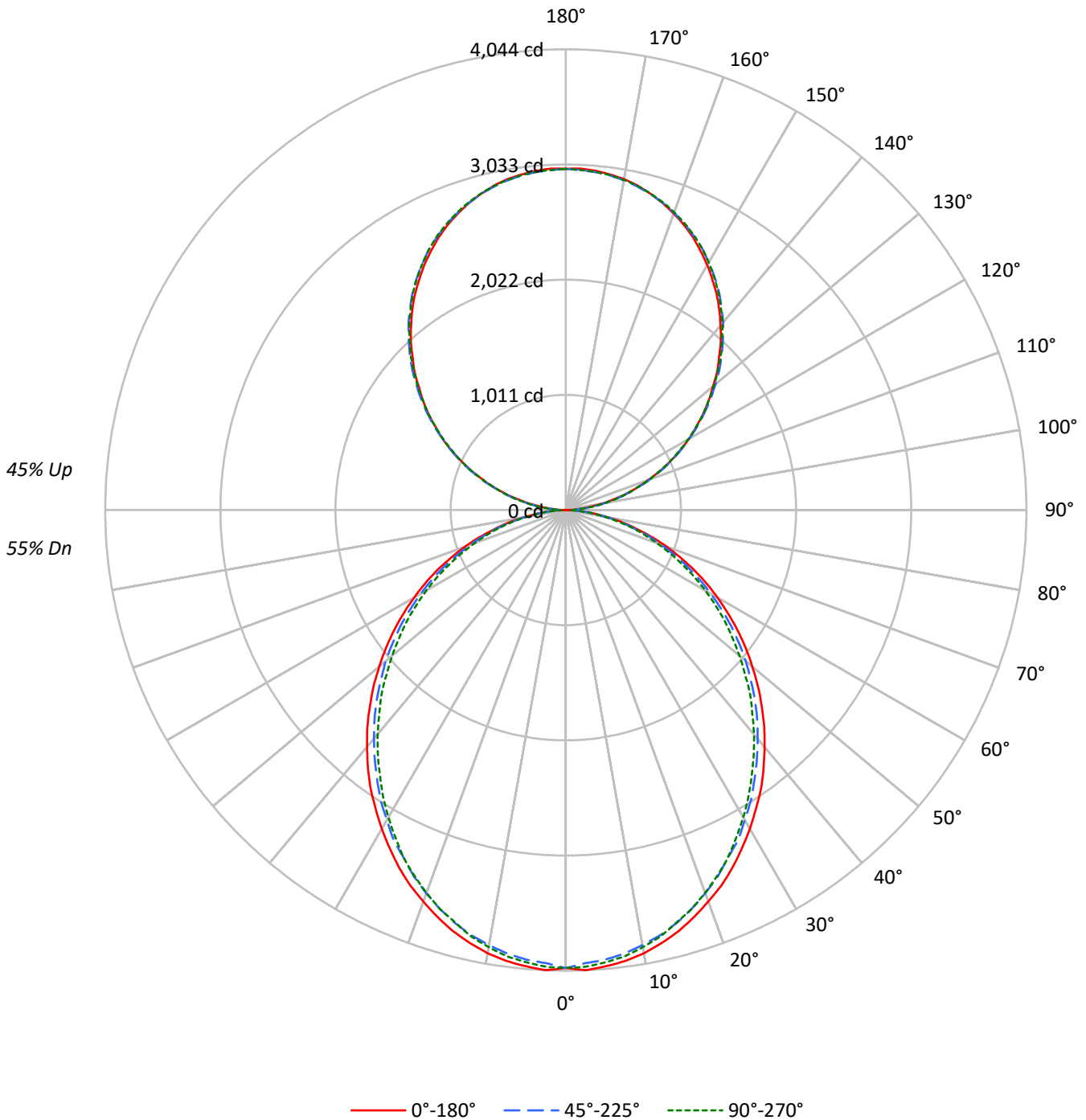
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 18610.5 lumens
Efficiency: N/A
Efficacy: 92.9 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 200.4
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9933
Total Harmonic Distortion (THDi): 0.066
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	108	108	108	108	101	101	101	101	86	86	86	73	73	73	61	61	61	55			
1	99	95	91	87	92	88	85	81	76	73	71	64	62	61	54	52	51	46			
2	90	83	76	71	83	77	71	67	66	62	59	56	53	51	47	45	43	39			
3	82	73	65	59	76	68	61	56	58	53	49	50	46	43	42	39	37	33			
4	75	64	56	50	70	60	53	47	52	46	42	44	40	37	37	34	32	28			
5	69	57	49	43	64	54	46	41	46	41	36	40	35	32	34	30	28	25			
6	64	51	43	37	59	48	41	35	42	36	32	36	32	28	31	27	24	22			
7	59	46	38	33	55	44	36	31	38	32	28	33	28	25	28	24	22	19			
8	55	42	34	29	51	40	33	28	35	29	25	30	25	22	26	22	19	17			
9	51	39	31	26	47	36	29	25	32	26	22	28	23	20	24	20	18	15			
10	48	35	28	23	44	33	27	22	29	24	20	26	21	18	22	19	16	14			

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2821	2821	2821
5°	2825	2782	2801
10°	2802	2745	2764
15°	2761	2701	2706
20°	2705	2638	2646
25°	2650	2564	2576
30°	2581	2494	2488
35°	2515	2413	2394
40°	2434	2330	2305
45°	2353	2247	2214
50°	2265	2160	2109
55°	2172	2060	2012
60°	2067	1940	1902
65°	1954	1817	1771
70°	1808	1667	1631
75°	1607	1487	1502
80°	1365	1257	1255
85°	987	860	843

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°
 Vertical Angle: 90°
 Luminance: 2358 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	378.4	2.0
10°-20°	1064.6	5.7
20°-30°	1564.6	8.4
30°-40°	1817.2	9.8
40°-50°	1814.9	9.8
50°-60°	1582.5	8.5
60°-70°	1169.9	6.3
70°-80°	661.9	3.6
80°-90°	183.2	1.0
90°-100°	185.3	1.0
100°-110°	588.9	3.2
110°-120°	1007.8	5.4
120°-130°	1325.4	7.1
130°-140°	1487.7	8.0
140°-150°	1458.9	7.8
150°-160°	1223.8	6.6
160°-170°	811.6	4.4
170°-180°	283.7	1.5
0°-30°	3007.6	16.2
0°-40°	4824.8	25.9
0°-60°	8222.2	44.2
0°-90°	10237.2	55.0
90°-120°	1782.1	9.6
90°-150°	6054.2	32.5
90°-180°	8373.0	45.0
0°-180°	18610.5	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4020	4020	4020	4020	4020	
5°	4020	4005	3962	3993	3986	382
15°	3827	3804	3754	3769	3750	1078
25°	3464	3433	3367	3375	3367	1594
35°	2988	2950	2888	2864	2845	1866
45°	2432	2405	2346	2304	2289	1877
55°	1840	1817	1771	1724	1705	1645
65°	1241	1218	1179	1144	1125	1227
75°	649	642	622	599	607	693
85°	158	155	151	139	135	177
90°	3	32	88	83	86	18
95°	132	157	162	162	157	147
105°	544	551	556	561	561	574
115°	1011	1026	1021	1019	1011	1000
125°	1471	1494	1486	1478	1476	1315
135°	1903	1931	1936	1933	1926	1471
145°	2310	2328	2342	2345	2335	1443
155°	2641	2648	2657	2669	2661	1216
165°	2873	2871	2871	2889	2876	811
175°	2990	2983	2977	2995	2980	284
180°	2995	2995	2995	2995	2995	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	4020.3	4020.3	4020.3	4020.3	4020.3
2.5°	4043.6	4024.3	3981.7	4020.3	4012.9
5°	4020.3	4005.0	3962.4	3993.1	3985.7
7.5°	3993.1	3970.1	3927.5	3958.7	3950.9
10°	3950.9	3923.8	3877.5	3908.2	3896.8
12.5°	3892.7	3869.7	3823.3	3842.6	3834.8
15°	3827.0	3804.1	3753.6	3769.2	3749.9
17.5°	3745.9	3722.9	3672.4	3691.7	3672.4
20°	3656.8	3633.8	3579.8	3591.2	3576.1
22.5°	3568.2	3533.4	3482.9	3482.9	3475.2
25°	3463.6	3432.9	3367.3	3374.7	3367.3
27.5°	3347.6	3320.5	3270.5	3259.0	3239.8
30°	3231.9	3200.8	3142.9	3131.4	3115.9
32.5°	3108.0	3085.1	3023.1	2999.8	2984.2
35°	2988.3	2949.8	2887.8	2864.5	2845.2
37.5°	2852.9	2818.1	2756.1	2729.1	2709.8
40°	2714.0	2682.8	2620.8	2586.4	2570.8
42.5°	2578.6	2547.4	2485.9	2447.0	2424.0
45°	2431.7	2404.7	2346.4	2304.2	2288.6
47.5°	2288.6	2261.5	2199.6	2157.0	2134.0
50°	2137.7	2118.4	2064.2	2010.1	1990.8
52.5°	1990.8	1963.8	1913.7	1871.0	1844.0
55°	1840.3	1817.0	1770.6	1724.2	1704.9
57.5°	1689.4	1670.1	1619.6	1573.3	1557.7
60°	1538.4	1523.3	1469.1	1426.5	1415.0
62.5°	1391.6	1364.5	1326.0	1287.5	1271.9
65°	1241.1	1217.7	1179.1	1144.3	1125.1
67.5°	1086.5	1066.8	1032.3	1005.3	989.7
70°	943.3	927.7	892.9	865.8	850.7
72.5°	796.5	780.9	761.6	734.6	723.1
75°	649.3	641.9	622.2	599.3	607.0
77.5°	518.0	502.4	494.6	483.1	471.7
80°	386.8	382.6	374.9	363.4	355.6
82.5°	262.9	262.9	259.2	243.7	243.7
85°	158.3	154.6	150.9	139.1	135.3
87.5°	69.7	61.9	54.2	42.6	38.6
90°	2.7	32.5	88.5	83.1	85.8
92.5°	56.0	75.9	78.5	81.3	81.3
95°	131.8	157.1	161.6	161.6	157.1
97.5°	219.5	242.9	252.9	252.9	252.9
100°	320.5	341.3	348.5	348.5	345.9
102.5°	427.1	442.5	452.5	455.1	452.5
105°	543.6	550.9	556.3	560.8	560.8
107.5°	659.2	670.0	670.0	671.8	659.2
110°	771.2	785.7	785.7	785.7	778.4



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	892.2	907.5	904.8	897.6	892.2
115°	1011.4	1025.8	1021.3	1018.6	1011.4
117.5°	1129.7	1149.5	1136.9	1129.7	1122.5
120°	1248.9	1268.8	1248.9	1248.9	1240.8
122.5°	1357.3	1382.5	1369.8	1362.6	1357.3
125°	1471.0	1493.6	1486.3	1478.2	1475.5
127.5°	1582.1	1610.1	1600.2	1589.3	1582.1
130°	1685.9	1718.5	1713.9	1708.5	1698.6
132.5°	1802.4	1827.7	1829.5	1816.9	1809.6
135°	1902.6	1930.6	1936.0	1933.4	1926.1
137.5°	2014.6	2037.2	2041.7	2039.9	2029.1
140°	2113.1	2135.6	2148.3	2148.3	2138.4
142.5°	2214.2	2236.8	2244.0	2246.7	2236.8
145°	2309.9	2328.0	2342.4	2345.1	2335.2
147.5°	2395.7	2418.3	2429.1	2433.6	2423.7
150°	2484.2	2499.6	2509.5	2517.6	2509.5
152.5°	2562.8	2578.1	2590.7	2600.7	2590.7
155°	2641.4	2648.5	2656.7	2669.4	2661.2
157.5°	2709.0	2714.5	2718.9	2737.0	2724.4
160°	2769.6	2775.0	2777.7	2793.1	2782.2
162.5°	2825.5	2825.5	2828.3	2845.4	2832.8
165°	2873.4	2870.7	2870.7	2888.7	2876.1
167.5°	2916.7	2908.6	2908.6	2926.7	2914.0
170°	2949.3	2942.0	2939.4	2957.4	2942.0
172.5°	2971.8	2964.6	2961.9	2980.0	2964.6
175°	2989.9	2982.7	2977.2	2995.3	2980.0
177.5°	2999.8	2992.6	2987.1	3002.6	2987.1
180°	2995.3	2995.3	2995.3	2995.3	2995.3



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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	11.34	12.24	12.25	13.18	14.37	10.89	11.80	11.81	12.73	13.93
	3H	13.01	13.82	13.93	14.76	15.98	12.51	13.33	13.44	14.27	15.49
	4H	13.60	14.37	14.54	15.31	16.55	13.10	13.87	14.04	14.82	16.05
	6H	14.00	14.71	14.95	15.67	16.91	13.50	14.21	14.45	15.17	16.41
	8H	14.11	14.79	15.07	15.76	17.00	13.61	14.29	14.57	15.26	16.50
	12H	14.16	14.81	15.13	15.77	17.04	13.65	14.30	14.62	15.26	16.53
4H	2H	11.80	12.57	12.75	13.52	14.75	11.45	12.22	12.39	13.17	14.40
	3H	13.68	14.32	14.63	15.30	16.54	13.27	13.91	14.23	14.89	16.14
	4H	14.40	14.99	15.36	15.96	17.23	13.97	14.56	14.94	15.53	16.80
	6H	14.92	15.43	15.90	16.42	17.69	14.49	15.00	15.47	15.99	17.26
	8H	15.07	15.55	16.05	16.53	17.82	14.64	15.11	15.62	16.10	17.38
	12H	15.15	15.58	16.15	16.58	17.87	14.70	15.13	15.70	16.13	17.42
8H	4H	14.60	15.07	15.58	16.06	17.34	14.22	14.70	15.20	15.68	16.97
	6H	15.24	15.63	16.24	16.66	17.94	14.85	15.25	15.86	16.27	17.56
	8H	15.46	15.81	16.47	16.82	18.12	15.07	15.41	16.08	16.43	17.73
	12H	15.60	15.90	16.61	16.91	18.26	15.19	15.49	16.20	16.50	17.85
12H	4H	14.59	15.01	15.59	16.02	17.31	14.22	14.65	15.22	15.65	16.94
	6H	15.27	15.61	16.28	16.63	17.93	14.90	15.24	15.91	16.26	17.56
	8H	15.52	15.82	16.53	16.83	18.18	15.14	15.44	16.15	16.45	17.80