

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: P920538

Luminaire Tested: DFN2DIP-SQ4F0-120D100US935-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P920538
REPORT IS A COMBINATION OF REPORTS P900144 AND P896915
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-120D100US935-RLLFLL
Description: 4 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

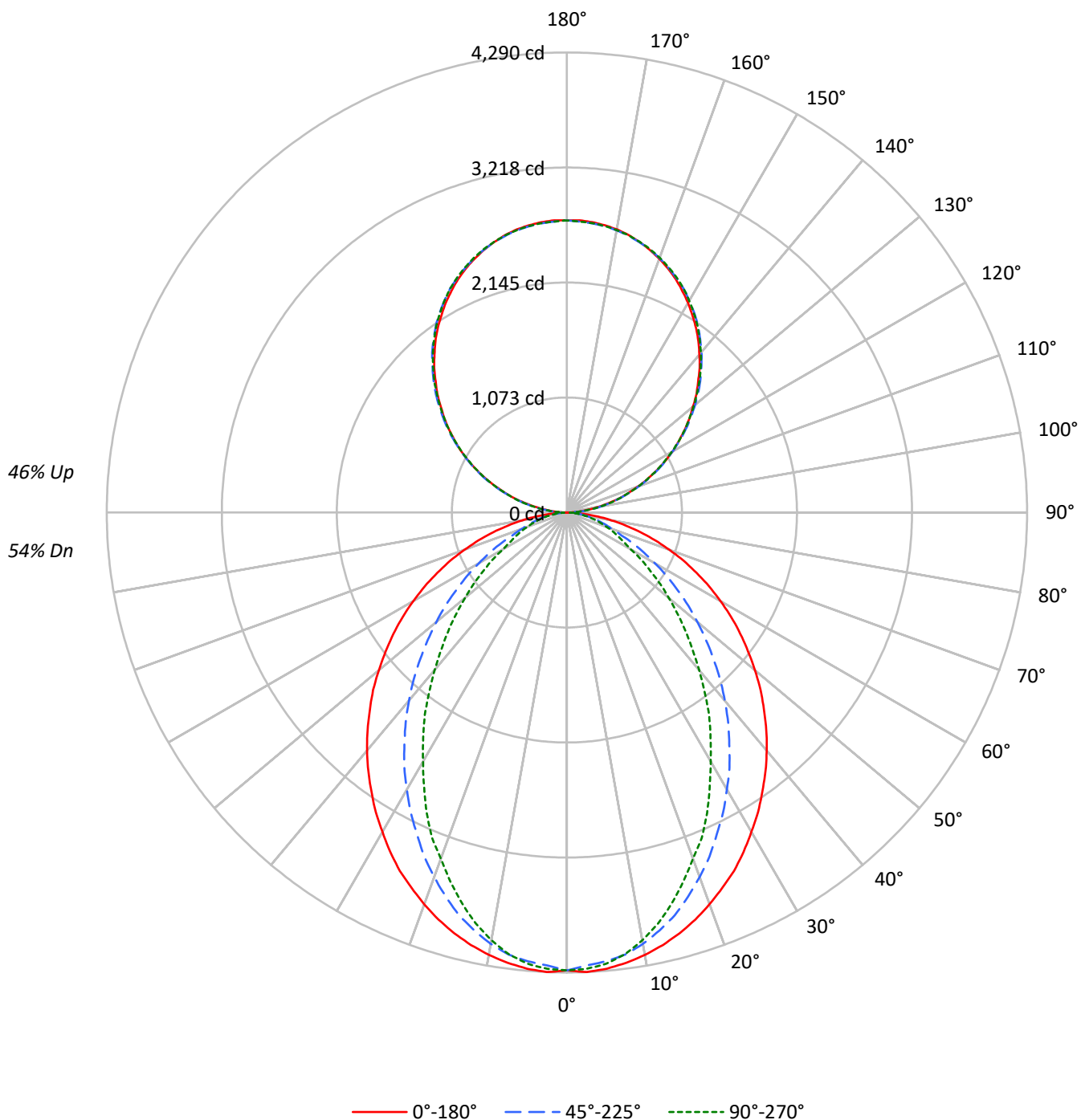
Lumens per Lamp: N/A
Luminaire Lumens: 16402.0 lumens
Efficiency: N/A
Efficacy: 85.3 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 192.3
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
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	72	72	72	59	59	59
1	99	95	91	88	92	88	85	82	76	73	71	64	62	61	53	52	51
2	91	84	78	73	84	78	73	68	67	63	60	57	54	52	48	46	44
3	83	74	67	61	77	69	63	58	59	55	51	51	47	44	43	40	38
4	76	66	58	52	71	61	55	49	53	48	44	46	42	38	38	36	33
5	70	59	51	45	65	55	48	43	48	42	38	41	37	34	35	32	29
6	65	53	45	39	60	50	43	37	43	38	34	37	33	30	32	29	26
7	60	48	40	35	56	45	38	33	39	34	30	34	30	27	29	26	23
8	56	44	36	31	52	41	34	30	36	31	27	31	27	24	27	24	21
9	52	40	33	28	48	38	31	27	33	28	24	29	25	22	25	22	19
10	49	37	30	25	45	35	28	24	31	25	22	27	23	20	23	20	18

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2996	2996	2996
5°	3001	2949	2969
10°	2971	2892	2873
15°	2930	2797	2724
20°	2876	2666	2542
25°	2821	2519	2365
30°	2746	2368	2141
35°	2673	2205	1945
40°	2599	2037	1719
45°	2513	1851	1514
50°	2424	1662	1314
55°	2331	1461	1122
60°	2223	1250	925
65°	2099	1036	833
70°	1949	836	755
75°	1760	739	689
80°	1486	621	600
85°	1035	418	457

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2513 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	400.2	2.4
10°-20°	1098.7	6.7
20°-30°	1542.5	9.4
30°-40°	1681.4	10.3
40°-50°	1545.4	9.4
50°-60°	1213.7	7.4
60°-70°	790.0	4.8
70°-80°	406.7	2.5
80°-90°	111.5	0.7
90°-100°	168.5	1.0
100°-110°	535.4	3.3
110°-120°	916.2	5.6
120°-130°	1204.9	7.3
130°-140°	1352.5	8.2
140°-150°	1326.3	8.1
150°-160°	1112.6	6.8
160°-170°	737.8	4.5
170°-180°	257.9	1.6
0°-30°	3041.3	18.5
0°-40°	4722.7	28.8
0°-60°	7481.7	45.6
0°-90°	8789.9	53.6
90°-120°	1620.1	9.9
90°-150°	5503.8	33.6
90°-180°	7612.0	46.4
0°-180°	16402.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4270	4270	4270	4270	4270	
5°	4270	4251	4200	4235	4224	405
15°	4062	4019	3888	3814	3776	1144
25°	3687	3563	3308	3150	3091	1696
35°	3177	2980	2640	2396	2311	1988
45°	2597	2338	1932	1658	1565	2006
55°	1975	1673	1256	1024	951	1764
65°	1333	1020	672	541	529	1322
75°	711	440	309	282	278	752
85°	166	85	73	73	73	191
90°	2	30	80	76	78	16
95°	120	143	147	147	143	133
105°	494	501	506	510	510	522
115°	920	932	928	926	920	909
125°	1337	1358	1351	1344	1341	1195
135°	1730	1755	1760	1758	1751	1337
145°	2100	2116	2130	2132	2123	1312
155°	2401	2408	2415	2427	2419	1105
165°	2612	2610	2610	2626	2615	737
175°	2718	2712	2707	2723	2709	258
180°	2723	2723	2723	2723	2723	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	4270.2	4270.2	4270.2	4270.2	4270.2
2.5°	4289.5	4270.2	4227.6	4266.5	4258.7
5°	4270.2	4250.9	4200.5	4235.3	4223.9
7.5°	4235.3	4212.3	4158.3	4173.4	4154.1
10°	4189.0	4162.0	4084.8	4073.0	4050.0
12.5°	4131.2	4096.4	3991.8	3968.9	3926.2
15°	4061.5	4018.9	3887.7	3814.2	3775.7
17.5°	3980.3	3918.4	3756.0	3671.2	3609.3
20°	3887.7	3810.2	3617.1	3520.7	3435.4
22.5°	3787.2	3698.2	3474.0	3342.7	3285.0
25°	3686.8	3562.9	3307.9	3149.6	3091.4
27.5°	3567.0	3435.4	3153.3	2971.7	2882.7
30°	3439.5	3292.4	2983.2	2786.4	2681.8
32.5°	3315.7	3137.7	2821.2	2589.2	2492.4
35°	3176.7	2979.5	2639.6	2396.1	2310.7
37.5°	3041.4	2828.6	2469.4	2202.5	2106.2
40°	2898.3	2666.7	2291.5	2017.2	1916.8
42.5°	2751.5	2504.3	2114.0	1827.8	1731.5
45°	2596.9	2337.9	1932.3	1657.7	1564.9
47.5°	2450.1	2175.9	1758.5	1483.8	1398.9
50°	2287.8	2013.5	1588.4	1321.5	1240.7
52.5°	2129.2	1839.3	1426.0	1171.0	1097.6
55°	1974.6	1673.3	1255.9	1024.2	950.8
57.5°	1816.3	1507.2	1105.3	888.9	827.0
60°	1654.0	1344.8	946.7	749.9	688.0
62.5°	1495.7	1186.5	811.4	626.1	595.3
65°	1333.3	1020.1	672.4	541.2	529.3
67.5°	1178.8	865.5	541.2	475.2	463.7
70°	1016.4	715.1	448.1	409.6	394.0
72.5°	861.9	575.7	374.7	344.0	336.2
75°	710.9	440.3	309.2	282.1	278.4
77.5°	560.5	312.8	243.6	228.0	220.2
80°	421.1	224.3	185.3	170.1	170.1
82.5°	293.6	150.8	127.5	119.7	119.7
85°	166.1	84.9	73.4	73.4	73.4
87.5°	61.9	30.7	30.7	27.0	27.0
90°	2.5	29.5	80.4	75.5	78.0
92.5°	50.9	69.0	71.5	73.9	73.9
95°	119.9	142.8	147.0	147.0	142.8
97.5°	199.5	220.8	229.9	229.9	229.9
100°	291.4	310.3	316.8	316.8	314.4
102.5°	388.3	402.3	411.3	413.7	411.3
105°	494.2	500.8	505.7	509.8	509.8
107.5°	599.3	609.2	609.2	610.8	599.3
110°	701.1	714.2	714.2	714.2	707.7



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	811.1	825.0	822.6	816.0	811.1
115°	919.5	932.5	928.5	926.0	919.5
117.5°	1027.0	1045.1	1033.5	1027.0	1020.4
120°	1135.3	1153.4	1135.3	1135.3	1128.0
122.5°	1233.8	1256.8	1245.3	1238.8	1233.8
125°	1337.3	1357.8	1351.3	1343.8	1341.4
127.5°	1438.3	1463.7	1454.7	1444.8	1438.3
130°	1532.7	1562.2	1558.1	1553.2	1544.2
132.5°	1638.6	1661.6	1663.2	1651.7	1645.1
135°	1729.7	1755.1	1760.1	1757.6	1751.0
137.5°	1831.5	1852.0	1856.1	1854.5	1844.6
140°	1921.0	1941.5	1953.0	1953.0	1944.0
142.5°	2012.9	2033.4	2040.0	2042.5	2033.4
145°	2099.9	2116.3	2129.5	2131.9	2122.9
147.5°	2177.9	2198.5	2208.3	2212.4	2203.4
150°	2258.4	2272.3	2281.4	2288.7	2281.4
152.5°	2329.8	2343.7	2355.3	2364.3	2355.3
155°	2401.2	2407.8	2415.2	2426.6	2419.2
157.5°	2462.8	2467.7	2471.8	2488.2	2476.7
160°	2517.8	2522.7	2525.1	2539.1	2529.3
162.5°	2568.7	2568.7	2571.1	2586.7	2575.2
165°	2612.2	2609.7	2609.7	2626.1	2614.7
167.5°	2651.6	2644.2	2644.2	2660.7	2649.1
170°	2681.1	2674.6	2672.1	2688.6	2674.6
172.5°	2701.6	2695.1	2692.6	2709.0	2695.1
175°	2718.1	2711.5	2706.6	2723.0	2709.0
177.5°	2727.1	2720.6	2715.6	2729.5	2715.6
180°	2723.0	2723.0	2723.0	2723.0	2723.0

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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	11.30	12.16	12.23	13.11	14.33	7.26	8.12	8.19	9.07	10.29
	3H	12.98	13.75	13.93	14.71	15.95	8.45	9.22	9.40	10.18	11.42
	4H	13.60	14.32	14.56	15.28	16.54	8.90	9.63	9.86	10.59	11.85
	6H	14.02	14.69	14.99	15.66	16.93	9.23	9.90	10.20	10.86	12.13
	8H	14.15	14.79	15.13	15.77	17.04	9.32	9.96	10.30	10.94	12.20
	12H	14.22	14.82	15.20	15.80	17.09	9.36	9.97	10.35	10.94	12.23
4H	2H	11.32	12.05	12.29	13.01	14.26	7.86	8.59	8.83	9.55	10.80
	3H	13.16	13.76	14.13	14.75	16.02	9.22	9.82	10.19	10.81	12.08
	4H	13.86	14.41	14.84	15.39	16.68	9.77	10.32	10.75	11.30	12.59
	6H	14.38	14.85	15.37	15.86	17.15	10.19	10.66	11.18	11.67	12.96
	8H	14.56	15.00	15.55	16.00	17.30	10.32	10.76	11.31	11.76	13.06
	12H	14.65	15.05	15.67	16.07	17.38	10.38	10.78	11.40	11.80	13.11
8H	4H	13.83	14.27	14.82	15.27	16.57	10.05	10.49	11.05	11.49	12.80
	6H	14.40	14.76	15.42	15.80	17.11	10.57	10.94	11.59	11.98	13.28
	8H	14.62	14.94	15.65	15.97	17.29	10.76	11.09	11.79	12.11	13.44
	12H	14.76	15.04	15.79	16.07	17.43	10.89	11.17	11.92	12.19	13.56
12H	4H	13.78	14.18	14.79	15.19	16.50	10.06	10.46	11.07	11.47	12.78
	6H	14.37	14.70	15.40	15.72	17.05	10.62	10.94	11.65	11.97	13.29
	8H	14.60	14.88	15.63	15.90	17.27	10.84	11.12	11.87	12.14	13.51