

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: P925892

Luminaire Tested: DFN2DIP-SQ4F0-090D120US950-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P925892
REPORT IS A COMBINATION OF REPORTS P900173 AND P896915
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-090D120US950-FLLFLL
Description: 4 foot, Square Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

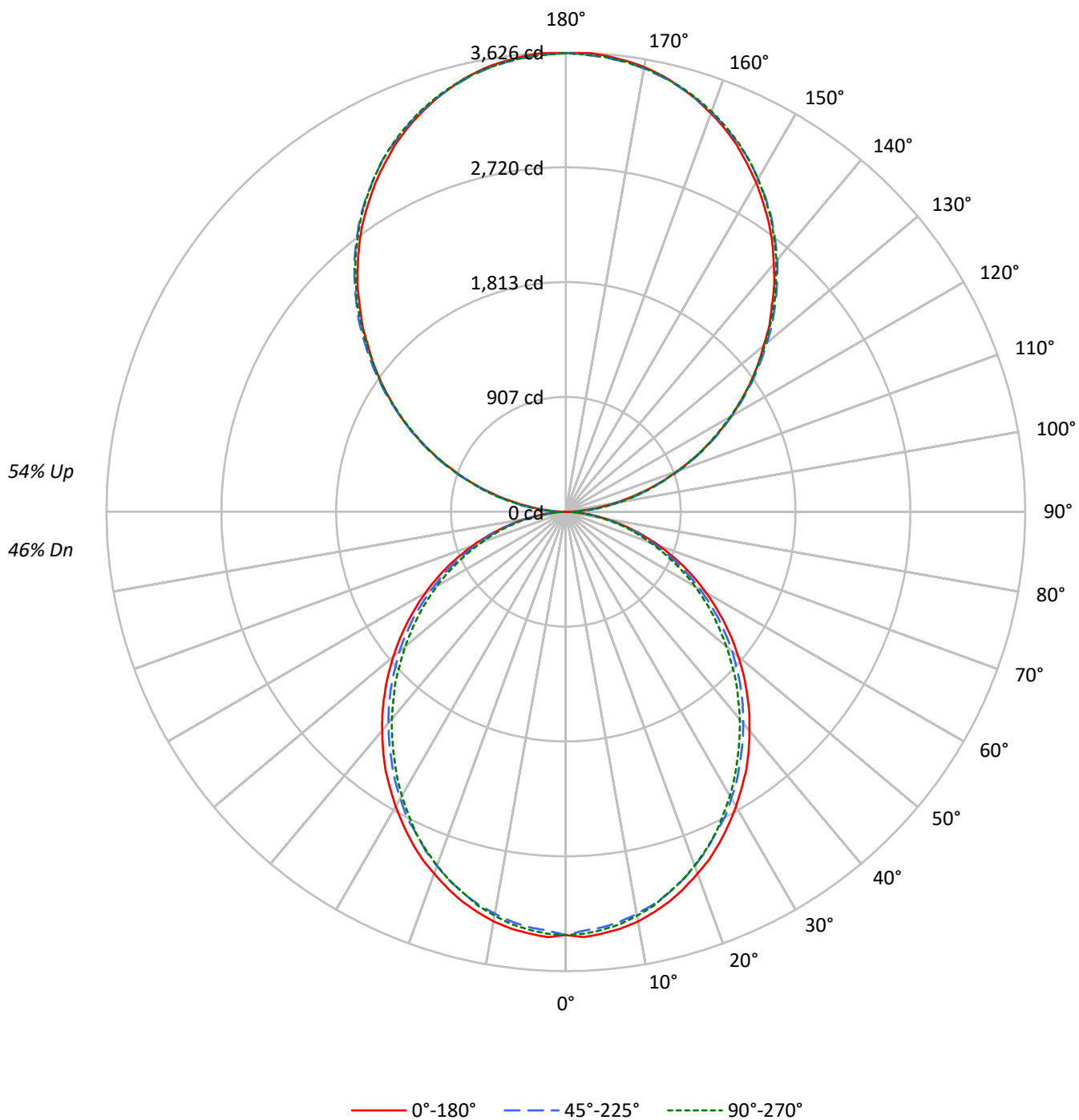
Lumens per Lamp: N/A
Luminaire Lumens: 18631.6 lumens
Efficiency: N/A
Efficacy: 107.8 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 172.8
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.983
Total Harmonic Distortion (THDi): 0.073
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	106	106	106	106	97	97	97	97	81	81	81	66	66	66	52	52	52
1	97	93	89	85	89	85	82	79	71	69	66	58	56	55	46	45	44
2	88	81	75	70	81	74	69	65	62	58	55	51	48	46	41	39	37
3	80	71	64	58	73	65	59	54	55	50	46	45	42	39	36	34	32
4	74	63	55	49	67	58	51	46	49	43	39	40	36	33	32	29	27
5	67	56	48	42	62	52	45	39	44	38	34	36	32	29	29	26	24
6	62	50	42	36	57	46	39	34	39	34	30	33	28	25	26	23	21
7	57	45	37	32	53	42	35	30	36	30	26	30	25	22	24	21	19
8	53	41	33	28	49	38	31	26	32	27	23	27	23	20	22	19	17
9	50	37	30	25	45	35	28	24	30	24	21	25	21	18	20	17	15
10	46	34	27	22	42	32	25	21	27	22	19	23	19	16	19	16	14

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2344	2344	2344
5°	2348	2312	2328
10°	2329	2281	2297
15°	2295	2244	2248
20°	2248	2192	2199
25°	2202	2131	2141
30°	2144	2073	2067
35°	2090	2005	1990
40°	2022	1936	1916
45°	1955	1867	1840
50°	1882	1795	1753
55°	1805	1712	1672
60°	1718	1612	1580
65°	1624	1510	1472
70°	1503	1385	1355
75°	1336	1235	1249
80°	1134	1045	1043
85°	820	715	701

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 2850 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	314.4	1.7
10°-20°	884.7	4.7
20°-30°	1300.2	7.0
30°-40°	1510.1	8.1
40°-50°	1508.2	8.1
50°-60°	1315.1	7.1
60°-70°	972.2	5.2
70°-80°	550.0	3.0
80°-90°	155.5	0.8
90°-100°	224.0	1.2
100°-110°	711.8	3.8
110°-120°	1218.2	6.5
120°-130°	1602.1	8.6
130°-140°	1798.3	9.7
140°-150°	1763.5	9.5
150°-160°	1479.3	7.9
160°-170°	981.0	5.3
170°-180°	342.9	1.8
0°-30°	2499.3	13.4
0°-40°	4009.4	21.5
0°-60°	6832.8	36.7
0°-90°	8510.4	45.7
90°-120°	2154.1	11.6
90°-150°	7318.0	39.3
90°-180°	10121.0	54.3
0°-180°	18631.6	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3341	3341	3341	3341	3341	
5°	3341	3328	3293	3318	3312	317
15°	3180	3161	3119	3132	3116	896
25°	2878	2853	2798	2804	2798	1324
35°	2483	2451	2400	2380	2364	1551
45°	2021	1998	1950	1915	1902	1560
55°	1529	1510	1471	1433	1417	1367
65°	1031	1012	980	951	935	1020
75°	540	533	517	498	504	576
85°	132	128	126	116	112	147
90°	3	39	107	100	104	18
95°	159	190	195	195	190	177
105°	657	666	672	678	678	693
115°	1222	1240	1234	1231	1222	1209
125°	1778	1805	1797	1787	1784	1589
135°	2300	2334	2340	2337	2328	1778
145°	2792	2814	2831	2835	2823	1745
155°	3193	3201	3211	3226	3217	1470
165°	3473	3470	3470	3492	3476	980
175°	3614	3605	3599	3620	3602	343
180°	3620	3620	3620	3620	3620	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3340.8	3340.8	3340.8	3340.8	3340.8
2.5°	3360.3	3344.2	3308.9	3340.8	3334.7
5°	3340.8	3328.2	3292.8	3318.4	3312.2
7.5°	3318.4	3299.3	3263.8	3289.8	3283.3
10°	3283.3	3260.8	3222.2	3247.8	3238.3
12.5°	3234.8	3215.7	3177.3	3193.2	3186.8
15°	3180.3	3161.3	3119.3	3132.3	3116.2
17.5°	3112.8	3093.7	3051.8	3067.9	3051.8
20°	3038.9	3019.8	2974.8	2984.3	2971.7
22.5°	2965.2	2936.3	2894.3	2894.3	2887.9
25°	2878.3	2852.7	2798.3	2804.4	2798.3
27.5°	2781.9	2759.3	2717.9	2708.3	2692.3
30°	2685.8	2659.8	2611.8	2602.2	2589.3
32.5°	2582.9	2563.8	2512.3	2492.9	2479.9
35°	2483.4	2451.3	2399.8	2380.4	2364.4
37.5°	2370.9	2341.9	2290.4	2267.9	2251.9
40°	2255.3	2229.4	2177.9	2149.3	2136.4
42.5°	2142.8	2116.9	2065.8	2033.5	2014.4
45°	2020.8	1998.3	1949.9	1914.8	1901.9
47.5°	1901.9	1879.4	1827.9	1792.5	1773.4
50°	1776.4	1760.4	1715.4	1670.5	1654.4
52.5°	1654.4	1631.9	1590.3	1554.9	1532.4
55°	1529.4	1509.9	1471.4	1432.9	1416.9
57.5°	1403.9	1387.9	1346.0	1307.5	1294.5
60°	1278.5	1265.9	1220.8	1185.4	1175.9
62.5°	1156.4	1133.9	1101.9	1069.9	1056.9
65°	1031.4	1011.9	979.9	950.9	934.9
67.5°	902.9	886.6	857.8	835.4	822.4
70°	783.9	770.9	742.0	719.5	706.9
72.5°	661.9	648.9	632.9	610.5	600.9
75°	539.6	533.4	517.1	498.0	504.5
77.5°	430.4	417.6	411.1	401.5	392.0
80°	321.4	318.0	311.5	301.9	295.5
82.5°	218.5	218.5	215.4	202.4	202.4
85°	131.6	128.5	125.5	115.5	112.5
87.5°	57.9	51.4	45.0	35.5	32.1
90°	3.2	39.3	106.9	100.5	103.7
92.5°	67.6	91.7	94.9	98.3	98.3
95°	159.3	189.9	195.4	195.4	189.9
97.5°	265.2	293.6	305.7	305.7	305.7
100°	387.5	412.6	421.3	421.3	418.0
102.5°	516.3	534.8	546.8	550.2	546.8
105°	657.1	665.8	672.4	677.8	677.8
107.5°	796.8	809.9	809.9	812.0	796.8
110°	932.2	949.6	949.6	949.6	940.9

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1078.4	1097.0	1093.7	1085.0	1078.4
115°	1222.5	1240.0	1234.5	1231.2	1222.5
117.5°	1365.5	1389.5	1374.2	1365.5	1356.8
120°	1509.6	1533.6	1509.6	1509.6	1499.8
122.5°	1640.6	1671.1	1655.9	1647.1	1640.6
125°	1778.1	1805.3	1796.7	1786.8	1783.5
127.5°	1912.4	1946.2	1934.1	1921.1	1912.4
130°	2037.8	2077.1	2071.7	2065.1	2053.1
132.5°	2178.6	2209.3	2211.4	2196.1	2187.4
135°	2299.8	2333.7	2340.3	2336.9	2328.2
137.5°	2435.2	2462.5	2467.9	2465.7	2452.6
140°	2554.1	2581.4	2596.7	2596.7	2584.7
142.5°	2676.4	2703.7	2712.4	2715.7	2703.7
145°	2792.1	2813.9	2831.4	2834.7	2822.7
147.5°	2895.8	2923.1	2936.2	2941.7	2929.6
150°	3002.8	3021.3	3033.3	3043.2	3033.3
152.5°	3097.7	3116.2	3131.6	3143.6	3131.6
155°	3192.7	3201.4	3211.3	3226.5	3216.7
157.5°	3274.6	3281.1	3286.5	3308.4	3293.1
160°	3347.7	3354.3	3357.5	3376.1	3362.9
162.5°	3415.3	3415.3	3418.7	3439.4	3424.1
165°	3473.2	3470.0	3470.0	3491.7	3476.5
167.5°	3525.6	3515.8	3515.8	3537.6	3522.4
170°	3564.9	3556.1	3552.9	3574.7	3556.1
172.5°	3592.2	3583.4	3580.2	3602.0	3583.4
175°	3614.0	3605.3	3598.8	3620.5	3602.0
177.5°	3626.1	3617.3	3610.7	3629.3	3610.7
180°	3620.5	3620.5	3620.5	3620.5	3620.5

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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	9.83	10.65	10.82	11.66	12.99	9.38	10.21	10.38	11.21	12.55
	3H	11.49	12.23	12.50	13.24	14.60	11.00	11.74	12.00	12.75	14.11
	4H	12.08	12.78	13.10	13.80	15.16	11.59	12.29	12.60	13.30	14.66
	6H	12.48	13.13	13.51	14.15	15.52	11.98	12.63	13.01	13.65	15.02
	8H	12.59	13.20	13.62	14.24	15.61	12.08	12.70	13.12	13.74	15.11
	12H	12.64	13.22	13.67	14.25	15.64	12.13	12.71	13.16	13.74	15.13
4H	2H	10.29	10.99	11.31	12.00	13.36	9.93	10.63	10.95	11.65	13.01
	3H	12.15	12.74	13.19	13.78	15.16	11.75	12.33	12.78	13.38	14.75
	4H	12.87	13.40	13.91	14.44	15.84	12.45	12.98	13.48	14.02	15.41
	6H	13.39	13.85	14.44	14.91	16.30	12.95	13.41	14.00	14.48	15.87
	8H	13.54	13.97	14.59	15.02	16.43	13.10	13.53	14.15	14.58	15.99
	12H	13.61	14.00	14.68	15.07	16.48	13.16	13.55	14.23	14.62	16.03
8H	4H	13.06	13.49	14.11	14.55	15.95	12.69	13.12	13.74	14.17	15.58
	6H	13.70	14.05	14.77	15.15	16.55	13.31	13.67	14.39	14.77	16.17
	8H	13.92	14.23	15.00	15.31	16.74	13.53	13.84	14.61	14.92	16.34
	12H	14.05	14.33	15.14	15.40	16.87	13.64	13.92	14.73	14.99	16.46
12H	4H	13.05	13.44	14.12	14.50	15.92	12.68	13.07	13.75	14.14	15.55
	6H	13.73	14.04	14.81	15.12	16.54	13.36	13.67	14.44	14.75	16.17
	8H	13.97	14.25	15.06	15.32	16.78	13.59	13.87	14.68	14.94	16.40