

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: P925885

Luminaire Tested: DFN2DIP-SQ4F0-090D100US950-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P925885
REPORT IS A COMBINATION OF REPORTS P901657 AND P898471
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-090D100US950-FLLONL
Description: 4 foot, Square Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

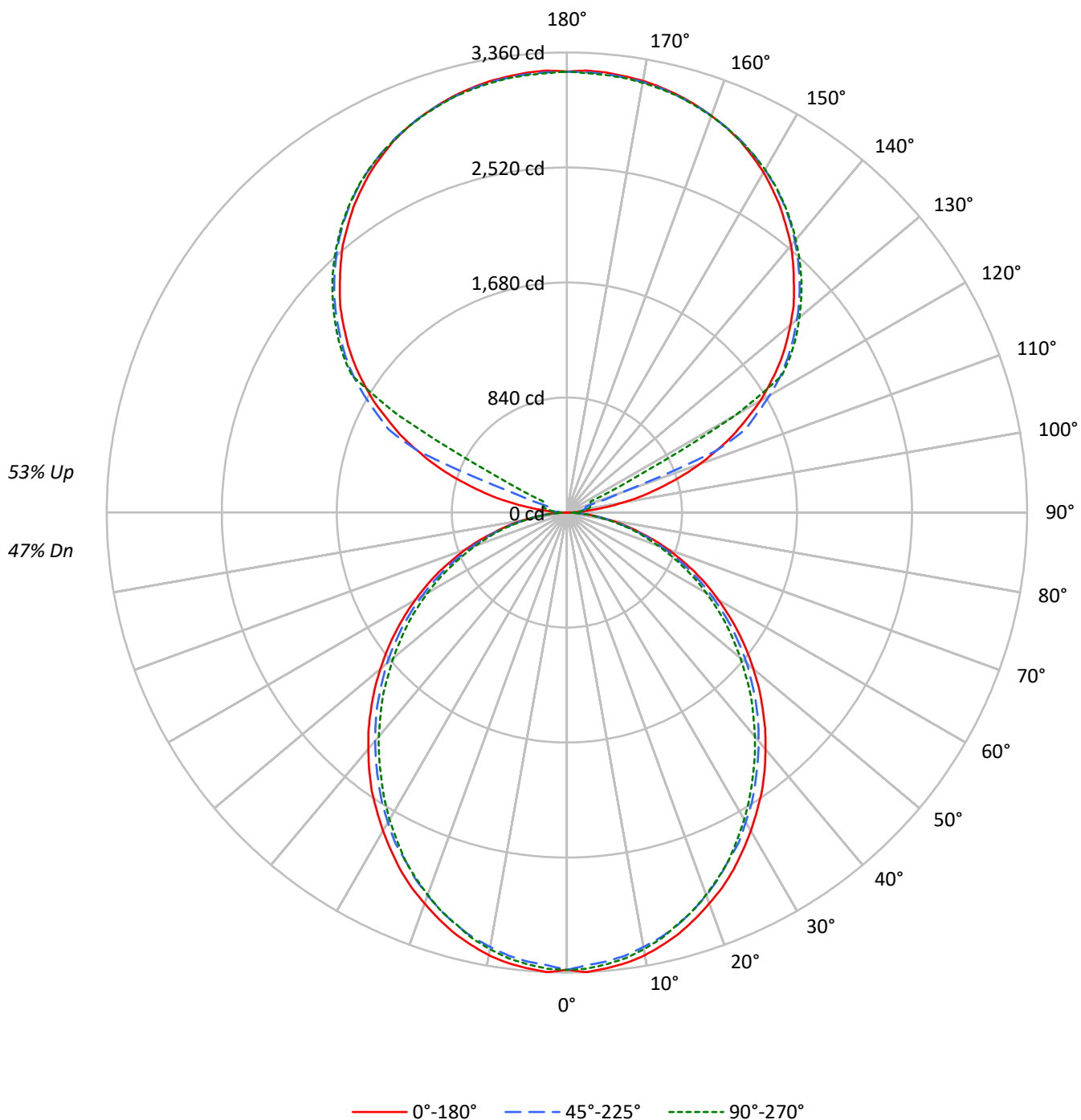
Lumens per Lamp: N/A
Luminaire Lumens: 17944.8 lumens
Efficiency: N/A
Efficacy: 114.0 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 157.4
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	107	107	107	107	98	98	98	98	82	82	82	67	67	67	54	54	54
1	97	93	89	86	89	86	82	79	72	69	67	59	57	56	47	46	45
2	89	81	75	70	81	75	70	65	63	59	56	52	49	47	42	40	38
3	81	71	64	58	74	66	59	54	55	51	47	46	42	40	37	35	33
4	74	63	55	49	68	58	51	46	49	44	40	41	37	34	33	30	28
5	68	56	48	42	62	52	45	40	44	39	34	37	33	29	30	27	24
6	62	50	42	37	57	47	40	34	40	34	30	33	29	26	27	24	22
7	58	45	38	32	53	42	35	30	36	30	26	30	26	23	25	22	19
8	54	41	34	28	49	38	31	27	33	27	23	28	23	20	23	20	17
9	50	38	30	25	46	35	28	24	30	25	21	25	21	18	21	18	15
10	47	35	27	23	43	32	26	21	28	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: 0°
Vertical Angle: 45°
Luminance: 1955 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	314.4	1.8
10°-20°	884.7	4.9
20°-30°	1300.2	7.2
30°-40°	1510.1	8.4
40°-50°	1508.2	8.4
50°-60°	1315.1	7.3
60°-70°	972.2	5.4
70°-80°	550.0	3.1
80°-90°	150.8	0.8
90°-100°	106.2	0.6
100°-110°	395.8	2.2
110°-120°	1049.6	5.8
120°-130°	1740.9	9.7
130°-140°	1849.2	10.3
140°-150°	1718.7	9.6
150°-160°	1381.8	7.7
160°-170°	890.4	5.0
170°-180°	306.5	1.7
0°-30°	2499.3	13.9
0°-40°	4009.4	22.3
0°-60°	6832.8	38.1
0°-90°	8505.8	47.4
90°-120°	1551.6	8.6
90°-150°	6860.4	38.2
90°-180°	9439.0	52.6
0°-180°	17944.8	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°	2	28	46	58	63	17
95°	151	74	91	103	100	179
105°	708	778	142	168	177	757
115°	1340	1379	1438	359	191	1319
125°	1894	1924	1969	1985	1992	1689
135°	2344	2381	2402	2425	2421	1810
145°	2719	2716	2756	2772	2761	1700
155°	2994	2973	3001	3015	2996	1380
165°	3154	3140	3147	3164	3147	891
175°	3226	3210	3215	3231	3208	307
180°	3220	3220	3220	3220	3220	

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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°	2.2	28.0	46.5	58.4	62.8
92.5°	58.4	48.9	55.9	60.6	62.8
95°	151.3	74.4	90.7	102.7	100.2
97.5°	272.5	81.6	118.7	125.8	128.1
100°	412.5	93.2	132.8	151.3	156.1
102.5°	566.0	561.6	137.5	162.9	170.1
105°	708.2	778.2	142.2	167.6	177.1
107.5°	873.7	931.8	146.9	172.4	181.7
110°	1032.1	1080.9	407.7	174.9	183.9

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1181.2	1223.0	1183.5	179.3	186.5
115°	1339.5	1379.1	1437.5	358.8	191.2
117.5°	1477.0	1523.5	1563.3	1230.0	619.7
120°	1630.9	1665.7	1707.8	1735.7	1421.2
122.5°	1761.2	1798.5	1845.2	1859.1	1861.5
125°	1894.0	1924.4	1968.7	1985.0	1991.9
127.5°	2015.1	2047.8	2082.9	2106.1	2108.3
130°	2129.3	2166.7	2192.2	2217.9	2215.7
132.5°	2245.8	2276.2	2301.7	2322.7	2320.5
135°	2343.8	2381.1	2401.9	2425.4	2420.7
137.5°	2446.2	2474.1	2497.6	2520.8	2513.9
140°	2546.2	2565.1	2590.5	2611.6	2599.9
142.5°	2630.4	2646.7	2676.8	2695.3	2683.8
145°	2718.9	2716.4	2756.0	2772.3	2760.7
147.5°	2795.5	2788.6	2828.1	2839.8	2830.7
150°	2870.2	2853.9	2891.3	2905.1	2893.5
152.5°	2933.0	2914.5	2949.4	2963.4	2947.1
155°	2993.7	2972.9	3000.8	3014.6	2996.1
157.5°	3042.6	3024.1	3045.1	3061.4	3042.6
160°	3084.7	3070.5	3084.7	3098.5	3082.2
162.5°	3121.7	3107.8	3119.5	3135.8	3114.8
165°	3154.3	3140.5	3147.4	3163.8	3147.4
167.5°	3180.1	3165.9	3173.2	3189.5	3168.4
170°	3201.1	3187.0	3191.7	3208.0	3187.0
172.5°	3214.9	3201.1	3205.8	3222.1	3201.1
175°	3226.5	3210.2	3214.9	3231.3	3208.0
177.5°	3231.3	3214.9	3217.5	3233.8	3212.7
180°	3219.7	3219.7	3219.7	3219.7	3219.7

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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	10.00	10.84	10.98	11.83	13.14	9.55	10.39	10.53	11.39	12.69
	3H	11.66	12.41	12.65	13.42	14.74	11.17	11.92	12.16	12.92	14.25
	4H	12.25	12.96	13.25	13.97	15.31	11.76	12.47	12.76	13.47	14.81
	6H	12.65	13.31	13.67	14.32	15.67	12.15	12.81	13.17	13.82	15.17
	8H	12.76	13.38	13.78	14.41	15.76	12.26	12.88	13.28	13.91	15.25
	12H	12.81	13.40	13.83	14.42	15.79	12.30	12.89	13.32	13.91	15.28
4H	2H	10.46	11.17	11.47	12.17	13.51	10.10	10.82	11.11	11.82	13.16
	3H	12.33	12.92	13.34	13.95	15.30	11.92	12.51	12.94	13.55	14.90
	4H	13.04	13.59	14.07	14.61	15.99	12.62	13.16	13.65	14.19	15.56
	6H	13.56	14.03	14.60	15.08	16.45	13.13	13.60	14.17	14.65	16.02
	8H	13.71	14.15	14.75	15.19	16.58	13.28	13.71	14.31	14.75	16.14
	12H	13.79	14.18	14.84	15.24	16.63	13.34	13.73	14.39	14.79	16.18
8H	4H	13.24	13.68	14.28	14.72	16.10	12.86	13.30	13.90	14.34	15.73
	6H	13.87	14.23	14.93	15.32	16.70	13.49	13.85	14.55	14.94	16.32
	8H	14.10	14.41	15.17	15.48	16.88	13.70	14.02	14.77	15.09	16.49
	12H	14.23	14.51	15.30	15.57	17.02	13.82	14.10	14.89	15.16	16.61
12H	4H	13.22	13.62	14.28	14.67	16.07	12.86	13.25	13.91	14.31	15.70
	6H	13.90	14.22	14.97	15.29	16.69	13.53	13.85	14.60	14.92	16.32
	8H	14.15	14.43	15.22	15.49	16.93	13.77	14.05	14.84	15.11	16.55