

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: P915125

Luminaire Tested: DFN2DIP-SQ4F0-140D120US927-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P915125
REPORT IS A COMBINATION OF REPORTS P901701 AND P898471
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-140D120US927-FLLONL
Description: 4 foot, Square Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

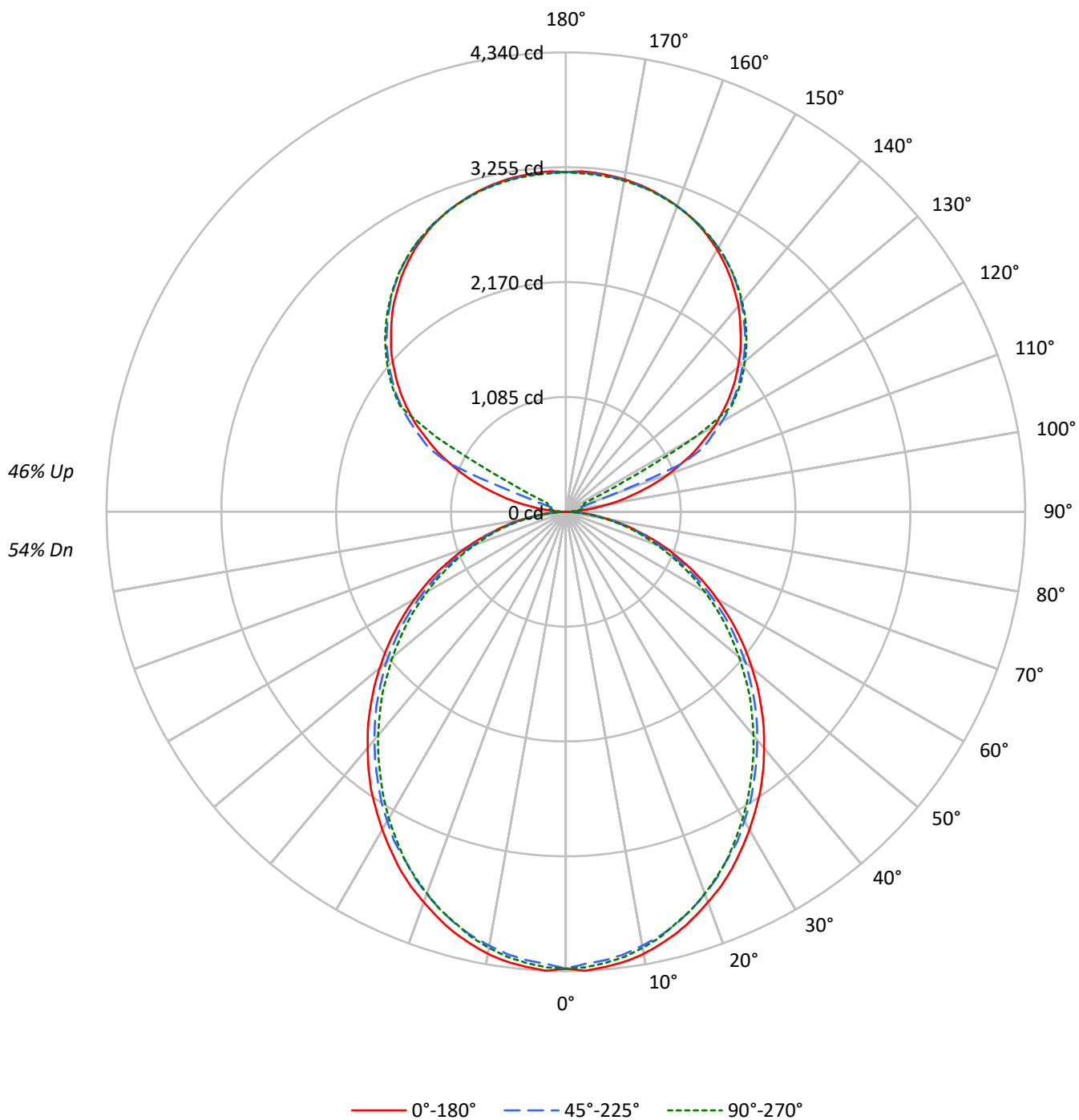
Lumens per Lamp: N/A
Luminaire Lumens: 20390.7 lumens
Efficiency: N/A
Efficacy: 87.2 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 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
RCR																	
0	108	108	108	108	100	100	100	100	85	85	85		72	72	72		60
1	99	94	90	87	91	88	84	81	75	73	70		63	62	60		53
2	90	82	76	71	83	77	71	67	66	62	58		56	53	50		46
3	82	72	65	59	76	67	61	56	58	53	49		49	46	42		41
4	75	64	56	50	69	60	53	47	52	46	42		44	40	36		37
5	69	57	49	43	64	53	46	41	46	40	36		39	35	32		33
6	63	51	43	37	59	48	41	35	42	36	31		36	31	28		30
7	59	46	38	33	54	43	36	31	38	32	28		32	28	24		27
8	54	42	34	29	50	39	32	28	34	29	25		30	25	22		25
9	51	38	31	26	47	36	29	25	32	26	22		27	23	20		23
10	47	35	28	23	44	33	27	22	29	24	20		25	21	18		22

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3028	3028	3028
5°	3033	2986	3007
10°	3008	2947	2967
15°	2964	2899	2904
20°	2904	2832	2840
25°	2845	2752	2765
30°	2770	2678	2671
35°	2699	2590	2570
40°	2612	2501	2475
45°	2526	2412	2377
50°	2431	2319	2264
55°	2332	2211	2160
60°	2219	2083	2041
65°	2097	1950	1901
70°	1941	1789	1750
75°	1725	1596	1613
80°	1466	1350	1347
85°	1059	923	906

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2526 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	406.2	2.0
10°-20°	1142.8	5.6
20°-30°	1679.5	8.2
30°-40°	1950.6	9.6
40°-50°	1948.2	9.6
50°-60°	1698.7	8.3
60°-70°	1255.7	6.2
70°-80°	710.5	3.5
80°-90°	193.2	0.9
90°-100°	105.8	0.5
100°-110°	394.4	1.9
110°-120°	1045.9	5.1
120°-130°	1734.7	8.5
130°-140°	1842.7	9.0
140°-150°	1712.6	8.4
150°-160°	1376.9	6.8
160°-170°	887.2	4.4
170°-180°	305.4	1.5
0°-30°	3228.4	15.8
0°-40°	5179.0	25.4
0°-60°	8825.9	43.3
0°-90°	10985.3	53.9
90°-120°	1546.1	7.6
90°-150°	6836.0	33.5
90°-180°	9405.0	46.1
0°-180°	20390.7	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4315	4315	4315	4315	4315	
5°	4315	4299	4253	4286	4278	410
15°	4108	4083	4029	4046	4025	1157
25°	3718	3685	3614	3622	3614	1711
35°	3208	3166	3100	3075	3054	2003
45°	2610	2581	2519	2473	2457	2014
55°	1976	1950	1901	1851	1830	1766
65°	1332	1307	1266	1228	1208	1317
75°	697	689	668	643	652	744
85°	170	166	162	149	145	190
90°	2	28	46	58	63	19
95°	151	74	90	102	100	179
105°	706	776	142	167	176	754
115°	1335	1374	1432	358	190	1314
125°	1887	1918	1962	1978	1985	1683
135°	2335	2373	2393	2417	2412	1804
145°	2709	2707	2746	2762	2751	1694
155°	2983	2962	2990	3004	2986	1375
165°	3143	3129	3136	3153	3136	888
175°	3215	3199	3204	3220	3197	306
180°	3208	3208	3208	3208	3208	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	4315.4	4315.4	4315.4	4315.4	4315.4
2.5°	4340.4	4319.8	4274.0	4315.4	4307.5
5°	4315.4	4299.1	4253.3	4286.3	4278.4
7.5°	4286.3	4261.7	4215.9	4249.3	4240.9
10°	4240.9	4211.9	4162.2	4195.2	4182.9
12.5°	4178.4	4153.8	4104.1	4124.7	4116.4
15°	4108.0	4083.4	4029.2	4046.0	4025.2
17.5°	4020.9	3996.2	3942.1	3962.7	3942.1
20°	3925.3	3900.7	3842.6	3854.9	3838.6
22.5°	3830.2	3792.8	3738.6	3738.6	3730.3
25°	3717.9	3684.9	3614.5	3622.4	3614.5
27.5°	3593.3	3564.3	3510.6	3498.3	3477.6
30°	3469.2	3435.8	3373.7	3361.4	3344.6
32.5°	3336.3	3311.6	3245.1	3220.1	3203.3
35°	3207.7	3166.3	3099.8	3074.8	3054.0
37.5°	3062.4	3025.0	2958.5	2929.5	2908.7
40°	2913.2	2879.7	2813.2	2776.3	2759.5
42.5°	2767.9	2734.5	2668.4	2626.6	2601.9
45°	2610.2	2581.2	2518.7	2473.3	2456.6
47.5°	2456.6	2427.6	2361.1	2315.3	2290.7
50°	2294.6	2274.0	2215.8	2157.7	2137.0
52.5°	2137.0	2107.9	2054.2	2008.4	1979.4
55°	1975.5	1950.4	1900.6	1850.9	1830.2
57.5°	1813.4	1792.7	1738.6	1688.9	1672.1
60°	1651.4	1635.1	1577.0	1531.2	1518.8
62.5°	1493.8	1464.7	1423.3	1382.0	1365.2
65°	1332.2	1307.1	1265.7	1228.3	1207.6
67.5°	1166.2	1145.1	1108.1	1079.0	1062.3
70°	1012.6	995.9	958.5	929.4	913.1
72.5°	855.0	838.2	817.5	788.5	776.2
75°	697.0	689.0	667.9	643.3	651.6
77.5°	556.0	539.3	530.9	518.6	506.3
80°	415.2	410.7	402.4	390.1	381.7
82.5°	282.2	282.2	278.2	261.5	261.5
85°	169.9	166.0	162.0	149.2	145.3
87.5°	74.9	66.5	58.1	45.8	41.4
90°	2.2	27.8	46.3	58.1	62.6
92.5°	58.1	48.8	55.7	60.4	62.6
95°	150.8	74.1	90.4	102.3	99.8
97.5°	271.6	81.4	118.3	125.4	127.6
100°	411.0	92.9	132.3	150.8	155.5
102.5°	564.0	559.6	137.0	162.4	169.5
105°	705.7	775.5	141.7	167.1	176.4
107.5°	870.5	928.4	146.4	171.7	181.1
110°	1028.5	1077.0	406.3	174.2	183.3

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1177.1	1218.7	1179.3	178.6	185.8
115°	1334.7	1374.2	1432.3	357.5	190.5
117.5°	1471.8	1518.1	1557.8	1225.6	617.5
120°	1625.1	1659.8	1701.7	1729.6	1416.1
122.5°	1754.9	1792.2	1838.7	1852.5	1855.0
125°	1887.2	1917.6	1961.7	1977.9	1984.8
127.5°	2007.9	2040.5	2075.5	2098.6	2100.9
130°	2121.8	2159.0	2184.4	2210.0	2207.8
132.5°	2237.8	2268.2	2293.5	2314.5	2312.3
135°	2335.4	2372.7	2393.3	2416.8	2412.1
137.5°	2437.5	2465.3	2488.7	2511.8	2505.0
140°	2537.3	2556.0	2581.3	2602.3	2590.7
142.5°	2621.0	2637.3	2667.4	2685.8	2674.2
145°	2709.3	2706.8	2746.2	2762.5	2750.8
147.5°	2785.6	2778.7	2818.2	2829.8	2820.6
150°	2860.0	2843.8	2881.0	2894.8	2883.2
152.5°	2922.6	2904.1	2938.9	2952.9	2936.7
155°	2983.0	2962.3	2990.2	3004.0	2985.5
157.5°	3031.8	3013.3	3034.3	3050.5	3031.8
160°	3073.7	3059.6	3073.7	3087.4	3071.2
162.5°	3110.7	3096.9	3108.4	3124.7	3103.8
165°	3143.1	3129.4	3136.2	3152.6	3136.2
167.5°	3168.8	3154.7	3161.9	3178.2	3157.2
170°	3189.7	3175.7	3180.4	3196.6	3175.7
172.5°	3203.5	3189.7	3194.5	3210.7	3189.7
175°	3215.1	3198.8	3203.5	3219.8	3196.6
177.5°	3219.8	3203.5	3206.0	3222.3	3201.4
180°	3208.3	3208.3	3208.3	3208.3	3208.3

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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	11.48	12.38	12.41	13.32	14.54	11.04	11.94	11.96	12.88	14.09
	3H	13.15	13.96	14.09	14.91	16.15	12.66	13.47	13.60	14.42	15.66
	4H	13.74	14.51	14.69	15.46	16.71	13.25	14.01	14.20	14.97	16.21
	6H	14.15	14.85	15.11	15.81	17.07	13.65	14.35	14.61	15.31	16.57
	8H	14.26	14.93	15.22	15.90	17.16	13.76	14.42	14.72	15.40	16.66
	12H	14.31	14.94	15.28	15.92	17.20	13.80	14.43	14.77	15.41	16.69
4H	2H	11.95	12.71	12.91	13.67	14.91	11.60	12.36	12.55	13.31	14.56
	3H	13.82	14.46	14.79	15.45	16.71	13.42	14.05	14.38	15.04	16.30
	4H	14.54	15.12	15.52	16.10	17.39	14.12	14.70	15.09	15.68	16.97
	6H	15.07	15.57	16.05	16.57	17.85	14.63	15.13	15.62	16.14	17.42
	8H	15.22	15.69	16.21	16.68	17.98	14.78	15.25	15.77	16.24	17.54
	12H	15.29	15.72	16.30	16.73	18.03	14.85	15.27	15.85	16.28	17.58
8H	4H	14.74	15.21	15.73	16.21	17.51	14.37	14.83	15.36	15.83	17.13
	6H	15.38	15.77	16.39	16.81	18.10	15.00	15.38	16.01	16.42	17.72
	8H	15.61	15.95	16.63	16.97	18.29	15.21	15.55	16.23	16.58	17.89
	12H	15.74	16.04	16.77	17.06	18.42	15.33	15.63	16.36	16.65	18.01
12H	4H	14.73	15.15	15.74	16.17	17.47	14.36	14.79	15.37	15.80	17.10
	6H	15.41	15.75	16.43	16.78	18.09	15.04	15.38	16.06	16.41	17.72
	8H	15.66	15.96	16.68	16.98	18.34	15.28	15.58	16.30	16.60	17.96