

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: P922905

Luminaire Tested: DFN2DIP-SQ3F0-090D080US940-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P922905
REPORT IS A COMBINATION OF REPORTS P901463 AND P898289
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ3F0-090D080US940-FLLONL
Description: 3 foot, Square Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

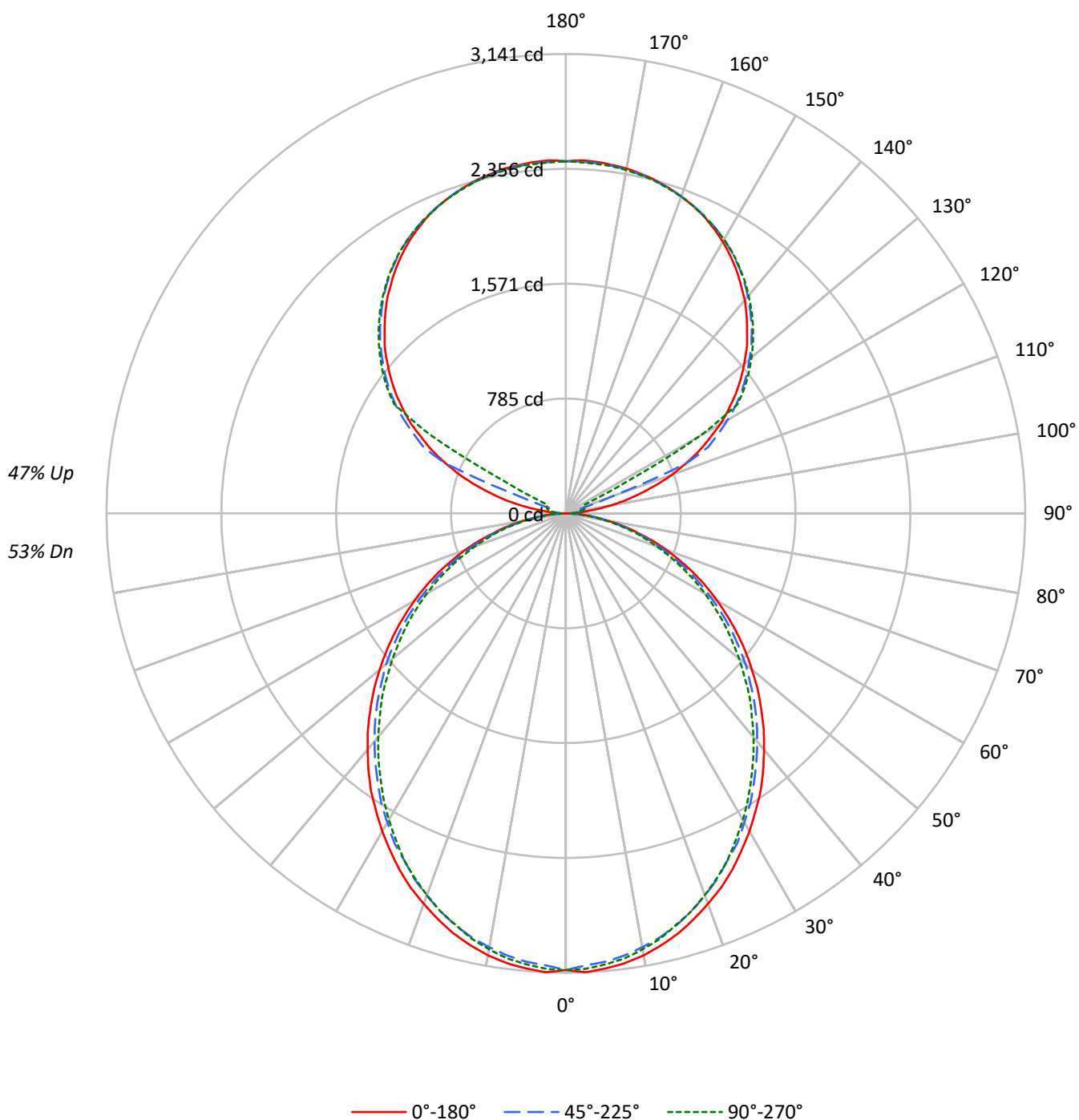
Lumens per Lamp: N/A
Luminaire Lumens: 15007.5 lumens
Efficiency: N/A
Efficacy: 101.3 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.06' x L: 3.06' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 148.2
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.996
Total Harmonic Distortion (THDi): 0.064
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	71	71	71	59	59	59
1	98	94	90	87	91	87	84	81	75	72	70	63	61	59	52	51	50
2	90	82	76	71	83	76	71	66	65	61	58	55	52	50	46	44	42
3	82	72	65	59	75	67	61	55	58	53	49	49	45	42	41	38	36
4	75	64	56	50	69	60	53	47	51	46	41	43	39	36	36	33	31
5	69	57	49	43	63	53	46	40	46	40	36	39	35	31	33	29	27
6	63	51	43	37	58	48	40	35	41	36	31	35	31	27	30	26	24
7	59	46	38	33	54	43	36	31	37	32	28	32	28	24	27	24	21
8	54	42	34	29	50	39	32	27	34	29	24	29	25	22	25	21	19
9	51	38	31	26	47	36	29	24	31	26	22	27	23	19	23	20	17
10	47	35	28	23	44	33	26	22	29	24	20	25	21	18	21	18	15

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3578	3578	3578
5°	3581	3526	3551
10°	3550	3476	3501
15°	3496	3416	3425
20°	3423	3334	3347
25°	3350	3237	3257
30°	3260	3146	3143
35°	3174	3039	3022
40°	3069	2931	2907
45°	2964	2823	2790
50°	2849	2709	2653
55°	2728	2578	2528
60°	2592	2421	2384
65°	2443	2260	2214
70°	2253	2062	2032
75°	1991	1825	1861
80°	1673	1522	1538
85°	1178	1010	1006

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2964 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	293.9	2.0
10°-20°	827.0	5.5
20°-30°	1215.3	8.1
30°-40°	1411.5	9.4
40°-50°	1409.7	9.4
50°-60°	1229.3	8.2
60°-70°	908.7	6.1
70°-80°	514.1	3.4
80°-90°	139.9	0.9
90°-100°	79.4	0.5
100°-110°	295.9	2.0
110°-120°	784.9	5.2
120°-130°	1301.8	8.7
130°-140°	1382.8	9.2
140°-150°	1285.1	8.6
150°-160°	1033.2	6.9
160°-170°	665.8	4.4
170°-180°	229.2	1.5
0°-30°	2336.2	15.6
0°-40°	3747.7	25.0
0°-60°	6386.7	42.6
0°-90°	7949.4	53.0
90°-120°	1160.2	7.7
90°-150°	5129.9	34.2
90°-180°	7058.0	47.0
0°-180°	15007.5	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3123	3123	3123	3123	3123	
5°	3123	3111	3078	3102	3096	296
15°	2973	2955	2916	2928	2913	837
25°	2690	2666	2616	2621	2616	1238
35°	2321	2291	2243	2225	2210	1449
45°	1889	1868	1823	1790	1778	1458
55°	1430	1411	1375	1339	1324	1278
65°	964	946	916	889	874	953
75°	504	499	483	466	472	538
85°	123	120	117	108	105	137
90°	2	21	35	44	47	14
95°	113	56	68	77	75	134
105°	530	582	106	125	132	566
115°	1002	1031	1075	268	143	986
125°	1416	1439	1472	1484	1489	1263
135°	1753	1780	1796	1814	1810	1354
145°	2033	2031	2061	2073	2064	1272
155°	2238	2223	2244	2254	2240	1032
165°	2359	2348	2354	2366	2354	666
175°	2413	2400	2404	2416	2399	230
180°	2408	2408	2408	2408	2408	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3122.7	3122.7	3122.7	3122.7	3122.7
2.5°	3140.9	3125.9	3092.8	3122.7	3117.0
5°	3122.7	3110.9	3077.8	3101.7	3095.9
7.5°	3101.7	3083.9	3050.7	3075.0	3068.9
10°	3068.9	3047.9	3011.8	3035.7	3026.8
12.5°	3023.6	3005.8	2969.8	2984.7	2978.8
15°	2972.7	2954.9	2915.6	2927.8	2912.8
17.5°	2909.6	2891.7	2852.6	2867.6	2852.6
20°	2840.5	2822.6	2780.5	2789.4	2777.7
22.5°	2771.6	2744.6	2705.4	2705.4	2699.3
25°	2690.4	2666.5	2615.6	2621.3	2615.6
27.5°	2600.2	2579.2	2540.4	2531.5	2516.5
30°	2510.4	2486.2	2441.2	2432.3	2420.3
32.5°	2414.2	2396.4	2348.2	2330.1	2318.0
35°	2321.2	2291.2	2243.1	2225.0	2210.0
37.5°	2216.1	2189.0	2140.8	2119.9	2104.9
40°	2108.0	2083.8	2035.7	2008.9	1996.9
42.5°	2002.9	1978.7	1930.9	1900.7	1882.8
45°	1888.8	1867.9	1822.6	1789.8	1777.7
47.5°	1777.7	1756.7	1708.5	1675.4	1657.6
50°	1660.5	1645.5	1603.4	1561.4	1546.4
52.5°	1546.4	1525.4	1486.5	1453.4	1432.4
55°	1429.5	1411.3	1375.3	1339.3	1324.4
57.5°	1312.2	1297.3	1258.1	1222.1	1210.0
60°	1195.0	1183.2	1141.1	1108.0	1099.1
62.5°	1080.9	1059.9	1029.9	1000.1	987.9
65°	964.0	945.8	915.9	888.9	873.9
67.5°	843.9	828.7	801.8	780.9	768.7
70°	732.7	720.6	693.6	672.5	660.8
72.5°	618.7	606.5	591.6	570.6	561.7
75°	504.4	498.6	483.3	465.5	471.5
77.5°	402.3	390.3	384.2	375.3	366.4
80°	300.4	297.2	291.1	282.2	276.3
82.5°	204.2	204.2	201.3	189.2	189.2
85°	123.0	120.1	117.3	108.0	105.1
87.5°	54.1	48.1	42.1	33.2	30.0
90°	1.7	20.9	34.8	43.6	47.0
92.5°	43.6	36.6	41.8	45.3	47.0
95°	113.2	55.6	67.9	76.8	74.9
97.5°	203.8	61.0	88.7	94.2	95.8
100°	308.4	69.7	99.3	113.2	116.6
102.5°	423.3	419.9	102.8	121.8	127.2
105°	529.6	581.9	106.3	125.4	132.4
107.5°	653.3	696.7	109.9	128.9	135.9
110°	771.9	808.2	305.0	130.7	137.6

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	883.3	914.5	885.0	134.0	139.5
115°	1001.7	1031.3	1074.9	268.3	142.9
117.5°	1104.5	1139.2	1169.0	919.7	463.4
120°	1219.5	1245.5	1277.0	1297.9	1062.7
122.5°	1316.9	1344.9	1379.8	1390.2	1392.0
125°	1416.2	1439.0	1472.0	1484.3	1489.4
127.5°	1506.8	1531.2	1557.6	1574.8	1576.5
130°	1592.2	1620.1	1639.2	1658.5	1656.8
132.5°	1679.4	1702.1	1721.2	1736.9	1735.2
135°	1752.6	1780.5	1796.0	1813.6	1810.1
137.5°	1829.2	1850.0	1867.6	1885.0	1879.8
140°	1904.0	1918.1	1937.2	1952.8	1944.1
142.5°	1966.9	1979.1	2001.6	2015.5	2006.8
145°	2033.1	2031.2	2060.8	2073.0	2064.3
147.5°	2090.4	2085.3	2114.8	2123.5	2116.7
150°	2146.3	2134.0	2162.0	2172.3	2163.6
152.5°	2193.3	2179.3	2205.4	2216.0	2203.8
155°	2238.5	2223.0	2243.9	2254.2	2240.4
157.5°	2275.1	2261.3	2277.0	2289.2	2275.1
160°	2306.6	2296.1	2306.6	2316.9	2304.7
162.5°	2334.3	2324.0	2332.6	2344.8	2329.1
165°	2358.8	2348.4	2353.6	2365.7	2353.6
167.5°	2377.9	2367.4	2372.8	2385.0	2369.3
170°	2393.7	2383.1	2386.7	2398.9	2383.1
172.5°	2404.1	2393.7	2397.2	2409.4	2393.7
175°	2412.7	2400.5	2404.1	2416.2	2398.9
177.5°	2416.2	2404.1	2405.8	2418.1	2402.4
180°	2407.5	2407.5	2407.5	2407.5	2407.5

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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	11.94	12.83	12.87	13.78	15.00	11.49	12.38	12.42	13.33	14.56
	3H	13.60	14.39	14.54	15.35	16.60	13.11	13.90	14.05	14.86	16.11
	4H	14.18	14.94	15.14	15.90	17.16	13.69	14.44	14.64	15.40	16.66
	6H	14.58	15.27	15.55	16.24	17.52	14.08	14.77	15.05	15.74	17.02
	8H	14.68	15.34	15.66	16.33	17.60	14.18	14.84	15.16	15.83	17.10
	12H	14.73	15.36	15.71	16.34	17.64	14.22	14.85	15.20	15.83	17.13
4H	2H	12.40	13.15	13.36	14.12	15.38	12.04	12.80	13.01	13.76	15.02
	3H	14.26	14.89	15.23	15.88	17.16	13.85	14.48	14.83	15.48	16.75
	4H	14.97	15.55	15.95	16.53	17.83	14.55	15.12	15.53	16.11	17.41
	6H	15.49	15.98	16.48	16.99	18.29	15.05	15.55	16.05	16.56	17.85
	8H	15.63	16.10	16.63	17.10	18.41	15.20	15.66	16.19	16.66	17.97
	12H	15.71	16.12	16.72	17.14	18.46	15.26	15.67	16.27	16.69	18.01
8H	4H	15.17	15.63	16.16	16.63	17.94	14.79	15.25	15.79	16.26	17.57
	6H	15.79	16.18	16.81	17.22	18.53	15.41	15.79	16.43	16.84	18.15
	8H	16.01	16.35	17.04	17.38	18.71	15.62	15.96	16.65	16.99	18.32
	12H	16.14	16.44	17.17	17.46	18.84	15.73	16.03	16.76	17.05	18.43
12H	4H	15.15	15.57	16.17	16.59	17.91	14.78	15.20	15.80	16.22	17.54
	6H	15.82	16.16	16.85	17.19	18.52	15.45	15.79	16.48	16.82	18.15
	8H	16.06	16.36	17.09	17.38	18.76	15.68	15.98	16.71	17.00	18.38