

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: P909545

Luminaire Tested: DFN2DIP-SQ4F0-100D080US840-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P909545
REPORT IS A COMBINATION OF REPORTS P901623 AND P898471
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-100D080US840-FLLONL
Description: 4 foot, Square Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

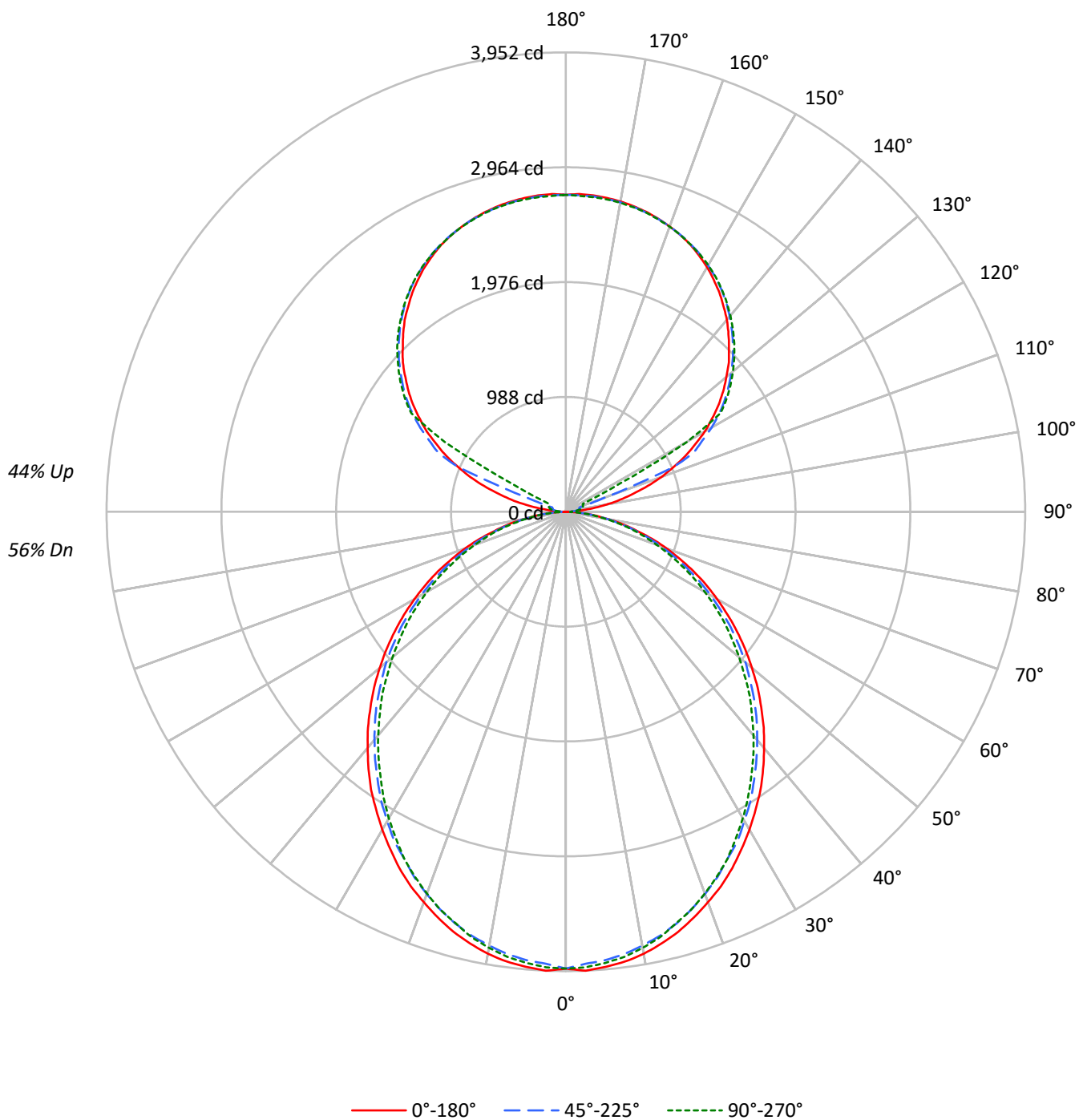
Lumens per Lamp: N/A
Luminaire Lumens: 17995.8 lumens
Efficiency: N/A
Efficacy: 118.2 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 152.2
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9968
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		101	101	101	101		86	86	86		73	73	73		61	61	61
1	99	95	91	87		92	88	85	82		76	73	71		65	63	61		54	53	52
2	90	83	76	71		84	77	72	67		66	62	59		57	54	51		48	46	44
3	82	73	65	59		76	68	61	56		59	54	50		50	46	43		42	39	37
4	75	64	56	50		70	60	53	48		52	47	42		45	40	37		38	35	32
5	69	57	49	43		64	54	46	41		47	41	36		40	36	32		34	31	28
6	64	52	43	37		59	48	41	36		42	36	32		36	32	28		31	27	25
7	59	47	39	33		55	44	36	31		38	32	28		33	28	25		28	25	22
8	55	42	34	29		51	40	33	28		35	29	25		30	26	22		26	22	20
9	51	39	31	26		47	36	29	25		32	26	22		28	23	20		24	20	18
10	48	35	28	23		44	33	27	22		29	24	20		26	21	18		22	19	16

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2757	2757	2757
5°	2762	2719	2738
10°	2739	2683	2702
15°	2699	2640	2644
20°	2644	2579	2586
25°	2590	2506	2518
30°	2522	2438	2432
35°	2458	2358	2340
40°	2379	2277	2253
45°	2300	2196	2165
50°	2213	2112	2061
55°	2123	2013	1967
60°	2021	1896	1859
65°	1910	1776	1731
70°	1768	1629	1594
75°	1571	1453	1469
80°	1334	1229	1227
85°	964	841	825

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2300 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	369.8	2.1
10°-20°	1040.6	5.8
20°-30°	1529.3	8.5
30°-40°	1776.1	9.9
40°-50°	1773.9	9.9
50°-60°	1546.8	8.6
60°-70°	1143.4	6.4
70°-80°	646.9	3.6
80°-90°	175.6	1.0
90°-100°	89.9	0.5
100°-110°	335.1	1.9
110°-120°	888.9	4.9
120°-130°	1474.3	8.2
130°-140°	1566.0	8.7
140°-150°	1455.4	8.1
150°-160°	1170.1	6.5
160°-170°	754.0	4.2
170°-180°	259.5	1.4
0°-30°	2939.7	16.3
0°-40°	4715.8	26.2
0°-60°	8036.5	44.7
0°-90°	10002.5	55.6
90°-120°	1314.0	7.3
90°-150°	5809.7	32.3
90°-180°	7993.0	44.4
0°-180°	17995.8	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3930	3930	3930	3930	3930	
5°	3930	3915	3873	3903	3896	373
15°	3741	3718	3669	3684	3665	1054
25°	3386	3355	3291	3298	3291	1558
35°	2921	2883	2823	2800	2781	1824
45°	2377	2350	2293	2252	2237	1834
55°	1799	1776	1731	1685	1666	1608
65°	1213	1190	1153	1118	1100	1199
75°	635	627	608	586	593	677
85°	155	151	148	136	132	173
90°	2	24	39	49	53	17
95°	128	63	77	87	85	152
105°	600	659	120	142	150	641
115°	1134	1168	1217	304	162	1117
125°	1604	1630	1667	1681	1687	1430
135°	1985	2016	2034	2054	2050	1533
145°	2302	2300	2334	2348	2338	1440
155°	2535	2518	2541	2553	2537	1168
165°	2671	2660	2665	2679	2665	755
175°	2732	2719	2723	2736	2717	260
180°	2726	2726	2726	2726	2726	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3929.5	3929.5	3929.5	3929.5	3929.5
2.5°	3952.3	3933.4	3891.7	3929.5	3922.2
5°	3929.5	3914.6	3872.9	3903.0	3895.8
7.5°	3903.0	3880.5	3838.8	3869.3	3861.7
10°	3861.7	3835.3	3789.9	3820.0	3808.8
12.5°	3804.8	3782.4	3737.0	3755.9	3748.2
15°	3740.6	3718.2	3668.8	3684.1	3665.3
17.5°	3661.3	3638.8	3589.5	3608.4	3589.5
20°	3574.2	3551.8	3498.9	3510.1	3495.2
22.5°	3487.7	3453.6	3404.3	3404.3	3396.7
25°	3385.5	3355.4	3291.3	3298.4	3291.3
27.5°	3272.0	3245.5	3196.6	3185.4	3166.5
30°	3159.0	3128.5	3071.9	3060.7	3045.5
32.5°	3037.9	3015.5	2954.9	2932.0	2916.8
35°	2920.8	2883.2	2822.6	2799.8	2780.9
37.5°	2788.5	2754.4	2693.9	2667.5	2648.6
40°	2652.6	2622.1	2561.6	2528.0	2512.7
42.5°	2520.3	2489.8	2429.7	2391.7	2369.2
45°	2376.8	2350.4	2293.4	2252.1	2237.0
47.5°	2237.0	2210.5	2149.9	2108.2	2085.8
50°	2089.4	2070.5	2017.6	1964.7	1945.9
52.5°	1945.9	1919.5	1870.5	1828.9	1802.4
55°	1798.8	1775.9	1730.6	1685.3	1666.5
57.5°	1651.2	1632.3	1583.1	1537.8	1522.6
60°	1503.7	1488.8	1435.9	1394.2	1383.0
62.5°	1360.2	1333.7	1296.1	1258.4	1243.1
65°	1213.1	1190.2	1152.6	1118.4	1099.6
67.5°	1062.0	1042.7	1009.1	982.6	967.4
70°	922.0	906.8	872.7	846.3	831.4
72.5°	778.5	763.3	744.5	718.0	706.7
75°	634.6	627.4	608.1	585.7	593.3
77.5°	506.3	491.1	483.4	472.2	461.0
80°	378.0	374.1	366.4	355.2	347.6
82.5°	257.0	257.0	253.4	238.1	238.1
85°	154.7	151.2	147.5	135.9	132.3
87.5°	68.2	60.5	52.9	41.7	37.7
90°	1.9	23.6	39.4	49.4	53.2
92.5°	49.4	41.5	47.4	51.3	53.2
95°	128.2	63.0	76.9	86.9	84.8
97.5°	230.8	69.1	100.5	106.6	108.5
100°	349.3	79.0	112.5	128.2	132.1
102.5°	479.4	475.5	116.4	137.9	144.1
105°	599.8	659.0	120.4	142.0	150.0
107.5°	739.8	789.0	124.4	145.9	153.9
110°	874.1	915.3	345.4	148.0	155.8

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1000.4	1035.7	1002.3	151.8	157.9
115°	1134.4	1167.9	1217.3	303.9	161.9
117.5°	1250.8	1290.2	1323.9	1041.6	524.8
120°	1381.1	1410.6	1446.2	1469.9	1203.5
122.5°	1491.4	1523.1	1562.7	1574.4	1576.5
125°	1603.9	1629.6	1667.1	1680.9	1686.8
127.5°	1706.5	1734.1	1763.9	1783.5	1785.4
130°	1803.2	1834.8	1856.4	1878.2	1876.3
132.5°	1901.9	1927.6	1949.2	1967.0	1965.1
135°	1984.8	2016.4	2034.0	2054.0	2049.9
137.5°	2071.5	2095.2	2115.1	2134.8	2128.9
140°	2156.3	2172.2	2193.8	2211.6	2201.7
142.5°	2227.6	2241.3	2266.8	2282.6	2272.7
145°	2302.5	2300.4	2333.9	2347.7	2337.8
147.5°	2367.4	2361.6	2395.0	2404.9	2397.1
150°	2430.6	2416.8	2448.4	2460.1	2450.3
152.5°	2483.9	2468.1	2497.6	2509.6	2495.8
155°	2535.2	2517.6	2541.2	2552.9	2537.3
157.5°	2576.6	2560.9	2578.7	2592.5	2576.6
160°	2612.2	2600.3	2612.2	2623.9	2610.1
162.5°	2643.6	2631.9	2641.7	2655.5	2637.8
165°	2671.3	2659.6	2665.4	2679.2	2665.4
167.5°	2693.0	2681.1	2687.2	2701.0	2683.2
170°	2710.9	2698.9	2702.9	2716.7	2698.9
172.5°	2722.6	2710.9	2714.8	2728.7	2710.9
175°	2732.4	2718.6	2722.6	2736.3	2716.7
177.5°	2736.3	2722.6	2724.6	2738.5	2720.7
180°	2726.5	2726.5	2726.5	2726.5	2726.5

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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	11.31	12.22	12.22	13.15	14.34	10.86	11.78	11.77	12.71	13.89
	3H	12.98	13.80	13.90	14.73	15.95	12.49	13.31	13.41	14.24	15.46
	4H	13.57	14.35	14.50	15.29	16.51	13.08	13.85	14.01	14.79	16.02
	6H	13.98	14.69	14.92	15.64	16.87	13.48	14.19	14.42	15.14	16.37
	8H	14.08	14.77	15.04	15.73	16.96	13.58	14.26	14.54	15.23	16.46
	12H	14.14	14.78	15.09	15.74	17.00	13.63	14.27	14.59	15.23	16.49
4H	2H	11.78	12.55	12.72	13.49	14.72	11.42	12.20	12.36	13.14	14.36
	3H	13.65	14.30	14.60	15.27	16.51	13.24	13.89	14.19	14.86	16.10
	4H	14.37	14.96	15.33	15.93	17.19	13.95	14.54	14.91	15.51	16.77
	6H	14.89	15.40	15.87	16.39	17.65	14.46	14.97	15.43	15.96	17.22
	8H	15.05	15.52	16.02	16.51	17.78	14.61	15.09	15.58	16.07	17.34
	12H	15.13	15.56	16.12	16.55	17.84	14.68	15.11	15.67	16.11	17.39
8H	4H	14.57	15.05	15.55	16.03	17.31	14.20	14.67	15.17	15.66	16.93
	6H	15.21	15.61	16.21	16.63	17.90	14.83	15.22	15.83	16.25	17.52
	8H	15.44	15.78	16.44	16.80	18.09	15.04	15.39	16.05	16.40	17.70
	12H	15.57	15.88	16.58	16.89	18.22	15.16	15.47	16.17	16.47	17.81
12H	4H	14.56	14.99	15.55	15.99	17.27	14.19	14.62	15.19	15.62	16.90
	6H	15.24	15.59	16.25	16.60	17.89	14.87	15.22	15.88	16.23	17.52
	8H	15.49	15.80	16.50	16.80	18.14	15.11	15.42	16.12	16.42	17.76