

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: P909560

Luminaire Tested: DFN2DIP-SQ4F0-100D120US840-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P909560
REPORT IS A COMBINATION OF REPORTS P900175 AND P896915
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-100D120US840-FLLFLL
Description: 4 foot, Square Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

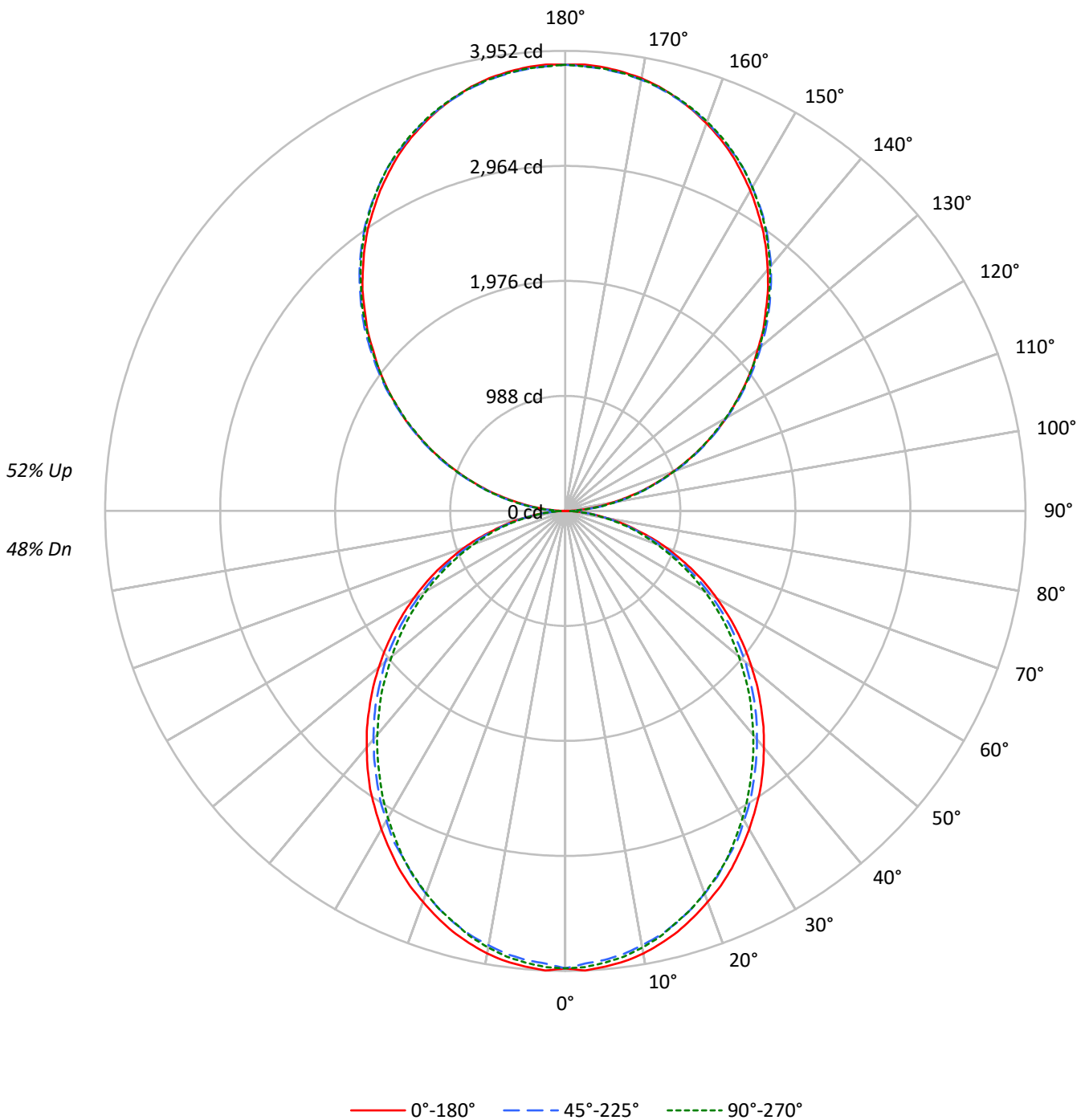
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 20722.5 lumens
Efficiency: N/A
Efficacy: 113.4 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): 182.8
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				20	
RC	80				70				50				30				10				0	
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	0	
RCR																						
0	107	107	107	107	98	98	98	98	82	82	82	68	68	68	55	55	55	48				48
1	97	93	89	86	89	86	82	79	72	70	68	60	58	57	48	47	46	41				41
2	89	81	75	70	81	75	70	65	63	59	56	52	50	47	42	41	39	34				34
3	81	71	64	58	74	66	60	54	56	51	47	46	43	40	38	35	33	29				29
4	74	63	55	49	68	59	52	46	50	44	40	41	37	34	34	31	28	25				25
5	68	56	48	42	62	52	45	40	44	39	35	37	33	30	30	27	25	22				22
6	63	51	42	37	57	47	40	34	40	34	30	34	29	26	27	24	22	19				19
7	58	46	38	32	53	42	35	30	36	31	27	30	26	23	25	22	19	17				17
8	54	41	34	28	49	39	32	27	33	28	24	28	24	20	23	20	17	15				15
9	50	38	30	25	46	35	28	24	30	25	21	26	21	18	21	18	16	14				14
10	47	35	27	23	43	32	26	21	28	23	19	24	20	17	20	17	14	12				12

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: 90°
 Vertical Angle: 90°
 Luminance: 3018 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	369.8	1.8
10°-20°	1040.6	5.0
20°-30°	1529.3	7.4
30°-40°	1776.1	8.6
40°-50°	1773.9	8.6
50°-60°	1546.8	7.5
60°-70°	1143.4	5.5
70°-80°	646.9	3.1
80°-90°	181.6	0.9
90°-100°	237.2	1.1
100°-110°	753.5	3.6
110°-120°	1289.5	6.2
120°-130°	1696.0	8.2
130°-140°	1903.6	9.2
140°-150°	1866.7	9.0
150°-160°	1565.9	7.6
160°-170°	1038.5	5.0
170°-180°	363.0	1.8
0°-30°	2939.7	14.2
0°-40°	4715.8	22.8
0°-60°	8036.5	38.8
0°-90°	10008.6	48.3
90°-120°	2280.2	11.0
90°-150°	7746.5	37.4
90°-180°	10714.0	51.7
0°-180°	20722.5	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°	3	42	113	106	110	20
95°	169	201	207	207	201	188
105°	696	705	712	718	718	734
115°	1294	1313	1307	1303	1294	1280
125°	1882	1911	1902	1892	1888	1682
135°	2434	2470	2477	2474	2465	1882
145°	2956	2979	2997	3001	2988	1847
155°	3380	3389	3399	3416	3405	1556
165°	3677	3673	3673	3696	3680	1037
175°	3826	3816	3810	3832	3813	363
180°	3832	3832	3832	3832	3832	



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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°	3.4	41.6	113.2	106.3	109.8
92.5°	71.6	97.0	100.5	104.0	104.0
95°	168.6	201.1	206.8	206.8	201.1
97.5°	280.7	310.8	323.6	323.6	323.6
100°	410.2	436.8	446.0	446.0	442.5
102.5°	546.5	566.1	578.9	582.4	578.9
105°	695.6	704.8	711.8	717.5	717.5
107.5°	843.4	857.4	857.4	859.6	843.4
110°	986.7	1005.2	1005.2	1005.2	996.0



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1141.6	1161.2	1157.7	1148.5	1141.6
115°	1294.0	1312.6	1306.8	1303.3	1294.0
117.5°	1445.4	1470.9	1454.7	1445.4	1436.2
120°	1598.0	1623.4	1598.0	1598.0	1587.6
122.5°	1736.7	1769.0	1752.8	1743.5	1736.7
125°	1882.2	1911.1	1901.9	1891.5	1887.9
127.5°	2024.4	2060.1	2047.4	2033.6	2024.4
130°	2157.2	2198.8	2193.0	2186.1	2173.3
132.5°	2306.2	2338.6	2340.9	2324.7	2315.5
135°	2434.5	2470.3	2477.3	2473.8	2464.6
137.5°	2577.8	2606.7	2612.4	2610.1	2596.3
140°	2703.7	2732.6	2748.8	2748.8	2736.0
142.5°	2833.2	2862.1	2871.2	2874.7	2862.1
145°	2955.6	2978.7	2997.2	3000.7	2988.0
147.5°	3065.3	3094.2	3108.2	3113.9	3101.2
150°	3178.7	3198.2	3211.0	3221.4	3211.0
152.5°	3279.1	3298.7	3315.0	3327.7	3315.0
155°	3379.6	3388.9	3399.3	3415.5	3405.1
157.5°	3466.4	3473.2	3479.0	3502.1	3486.0
160°	3543.7	3550.7	3554.1	3573.8	3559.9
162.5°	3615.3	3615.3	3618.9	3640.8	3624.6
165°	3676.6	3673.2	3673.2	3696.2	3680.1
167.5°	3732.1	3721.7	3721.7	3744.8	3728.6
170°	3773.7	3764.4	3760.9	3784.1	3764.4
172.5°	3802.5	3793.3	3789.8	3812.9	3793.3
175°	3825.7	3816.4	3809.5	3832.5	3812.9
177.5°	3838.4	3829.1	3822.1	3841.8	3822.1
180°	3832.5	3832.5	3832.5	3832.5	3832.5



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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	10.65	11.49	11.62	12.48	13.77	10.20	11.05	11.17	12.03	13.33
	3H	12.31	13.07	13.29	14.06	15.38	11.82	12.58	12.80	13.57	14.89
	4H	12.90	13.62	13.90	14.62	15.94	12.41	13.12	13.40	14.12	15.45
	6H	13.30	13.96	14.31	14.97	16.31	12.80	13.46	13.81	14.47	15.81
	8H	13.41	14.04	14.42	15.06	16.39	12.91	13.54	13.92	14.56	15.89
	12H	13.46	14.06	14.48	15.07	16.43	12.95	13.55	13.97	14.56	15.92
4H	2H	11.11	11.83	12.11	12.82	14.15	10.75	11.47	11.75	12.47	13.79
	3H	12.98	13.58	13.99	14.60	15.94	12.57	13.17	13.58	14.20	15.53
	4H	13.69	14.24	14.71	15.26	16.62	13.27	13.82	14.29	14.84	16.20
	6H	14.21	14.68	15.24	15.73	17.09	13.78	14.25	14.81	15.29	16.65
	8H	14.36	14.80	15.39	15.84	17.21	13.93	14.37	14.96	15.40	16.78
	12H	14.44	14.84	15.49	15.89	17.27	13.99	14.39	15.04	15.44	16.82
8H	4H	13.89	14.33	14.92	15.37	16.74	13.51	13.95	14.54	14.99	16.36
	6H	14.52	14.89	15.58	15.97	17.34	14.14	14.51	15.20	15.58	16.95
	8H	14.75	15.07	15.81	16.13	17.52	14.36	14.68	15.42	15.74	17.13
	12H	14.88	15.16	15.95	16.22	17.65	14.47	14.75	15.54	15.81	17.24
12H	4H	13.87	14.27	14.92	15.32	16.70	13.51	13.90	14.56	14.96	16.33
	6H	14.55	14.88	15.62	15.94	17.33	14.18	14.50	15.24	15.57	16.96
	8H	14.80	15.08	15.87	16.14	17.57	14.42	14.70	15.48	15.76	17.19