

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: P927009

Luminaire Tested: DFN2DIP-HX4F0-070D110US830-RLLFLL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P927009
REPORT IS A COMBINATION OF REPORTS P899432 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-070D110US830-RLLFLL
Description: 4 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

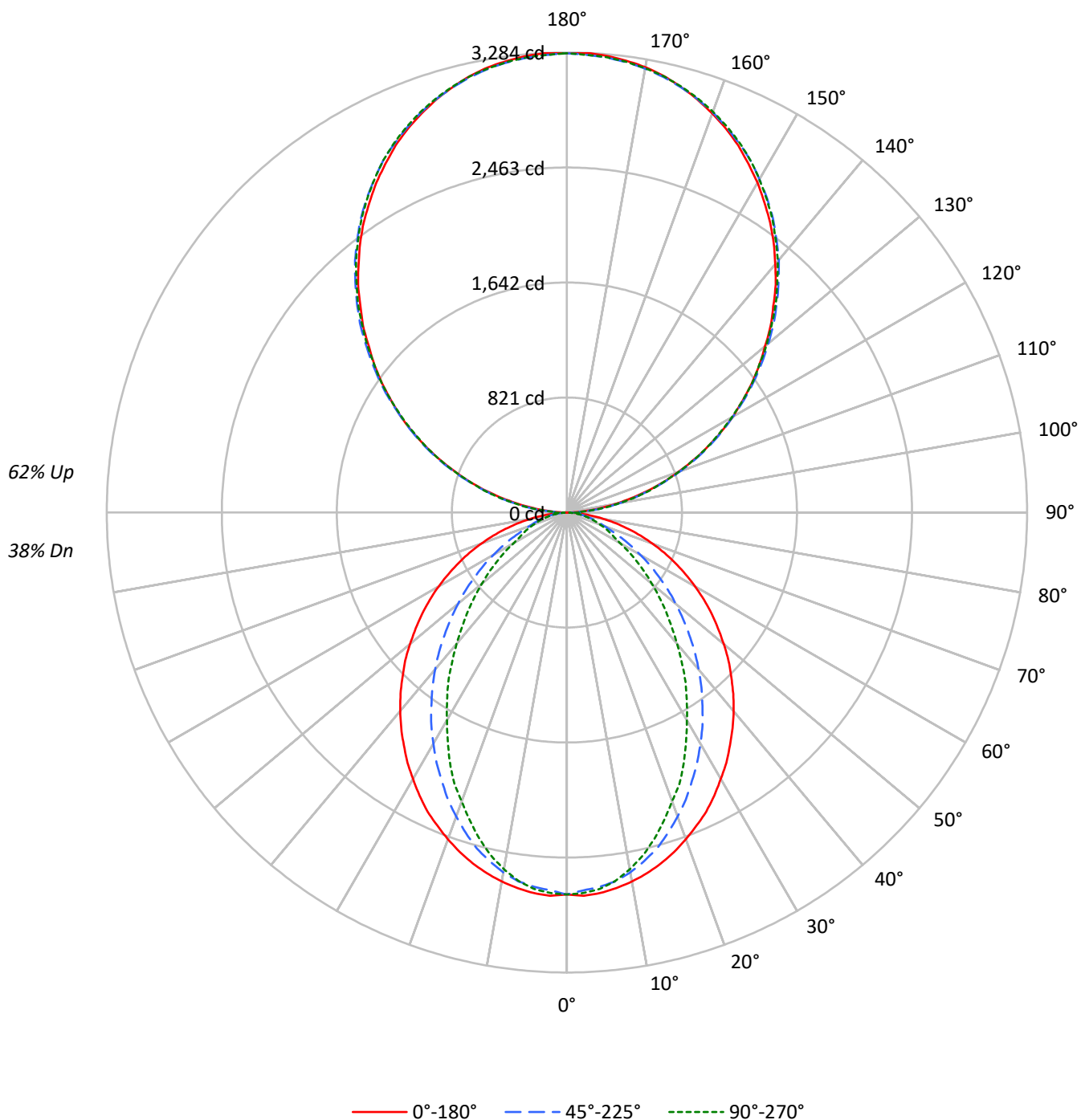
Lumens per Lamp: N/A
Luminaire Lumens: 14783.1 lumens
Efficiency: N/A
Efficacy: 96.3 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 153.5
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9972
Total Harmonic Distortion (THDi): 0.128
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	104	104	104	104	95	95	95	95	77	77	77	60	60	60	45	45	45
1	95	91	88	84	87	83	80	77	68	66	64	53	52	51	40	40	39
2	87	80	74	69	79	73	68	64	60	56	53	47	45	43	36	34	33
3	80	71	64	58	72	65	59	54	53	49	45	42	39	37	32	30	29
4	73	63	55	49	66	57	51	46	47	42	39	38	34	32	29	27	25
5	67	56	48	43	61	51	45	40	42	37	34	34	30	28	26	24	22
6	62	50	43	37	56	46	39	34	38	33	29	31	27	24	24	21	20
7	57	45	38	32	52	42	35	30	35	30	26	28	24	22	22	19	17
8	53	41	34	29	48	38	31	27	32	27	23	26	22	19	20	18	16
9	49	38	30	26	45	35	28	24	29	24	21	24	20	17	19	16	14
10	46	35	28	23	42	32	26	22	27	22	19	22	18	16	17	15	13

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2027	2027	2027
5°	2031	1996	2008
10°	2011	1957	1943
15°	1983	1892	1842
20°	1947	1803	1718
25°	1910	1703	1599
30°	1859	1601	1447
35°	1810	1491	1313
40°	1760	1377	1160
45°	1702	1251	1022
50°	1642	1123	887
55°	1579	987	757
60°	1507	844	623
65°	1423	700	561
70°	1322	564	508
75°	1195	498	462
80°	1011	419	401
85°	707	280	302

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 2472 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	255.6	1.7
10°-20°	701.5	4.7
20°-30°	984.9	6.7
30°-40°	1073.7	7.3
40°-50°	986.8	6.7
50°-60°	775.0	5.2
60°-70°	504.4	3.4
70°-80°	259.7	1.8
80°-90°	75.6	0.5
90°-100°	202.9	1.4
100°-110°	644.7	4.4
110°-120°	1103.2	7.5
120°-130°	1450.9	9.8
130°-140°	1628.6	11.0
140°-150°	1597.0	10.8
150°-160°	1339.7	9.1
160°-170°	888.4	6.0
170°-180°	310.5	2.1
0°-30°	1942.0	13.1
0°-40°	3015.7	20.4
0°-60°	4777.5	32.3
0°-90°	5617.1	38.0
90°-120°	1950.8	13.2
90°-150°	6627.3	44.8
90°-180°	9166.0	62.0
0°-180°	14783.1	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2727	2727	2727	2727	2727	
5°	2727	2714	2682	2704	2697	259
15°	2594	2566	2482	2436	2411	731
25°	2354	2275	2112	2011	1974	1083
35°	2028	1902	1686	1530	1476	1270
45°	1658	1493	1234	1058	999	1281
55°	1261	1068	802	654	607	1127
65°	851	651	429	346	338	844
75°	454	281	197	180	178	480
85°	106	54	47	47	47	122
90°	3	36	97	91	94	15
95°	144	172	177	177	172	161
105°	595	603	609	614	614	628
115°	1107	1123	1118	1115	1107	1095
125°	1610	1635	1627	1618	1615	1439
135°	2083	2113	2119	2116	2108	1610
145°	2528	2548	2564	2567	2556	1580
155°	2891	2899	2908	2922	2913	1331
165°	3145	3142	3142	3162	3148	887
175°	3273	3265	3259	3279	3262	311
180°	3279	3279	3279	3279	3279	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2726.7	2726.7	2726.7	2726.7	2726.7
2.5°	2739.0	2726.7	2699.5	2724.4	2719.4
5°	2726.7	2714.4	2682.3	2704.5	2697.2
7.5°	2704.5	2689.8	2655.3	2664.9	2652.7
10°	2674.9	2657.7	2608.4	2600.8	2586.1
12.5°	2638.0	2615.7	2549.0	2534.3	2507.0
15°	2593.5	2566.2	2482.5	2435.6	2411.0
17.5°	2541.6	2502.1	2398.5	2344.2	2304.7
20°	2482.5	2433.0	2309.7	2248.1	2193.7
22.5°	2418.4	2361.5	2218.3	2134.5	2097.6
25°	2354.2	2275.1	2112.2	2011.2	1974.1
27.5°	2277.7	2193.7	2013.6	1897.6	1840.8
30°	2196.3	2102.3	1904.9	1779.3	1712.5
32.5°	2117.2	2003.7	1801.5	1653.3	1591.5
35°	2028.4	1902.5	1685.6	1530.1	1475.6
37.5°	1942.1	1806.2	1576.9	1406.4	1344.9
40°	1850.7	1702.8	1463.2	1288.1	1223.9
42.5°	1757.0	1599.1	1349.8	1167.1	1105.6
45°	1658.3	1492.8	1233.9	1058.5	999.3
47.5°	1564.6	1389.4	1122.9	947.5	893.3
50°	1460.9	1285.8	1014.2	843.8	792.3
52.5°	1359.6	1174.4	910.5	747.7	700.8
55°	1260.9	1068.4	801.9	654.0	607.2
57.5°	1159.8	962.4	705.8	567.6	528.1
60°	1056.2	858.7	604.5	478.9	439.3
62.5°	955.0	757.7	518.1	399.8	380.1
65°	851.4	651.4	429.4	345.6	338.0
67.5°	752.7	552.7	345.6	303.4	296.1
70°	649.0	456.5	286.1	261.5	251.6
72.5°	550.3	367.6	239.3	219.7	214.7
75°	454.0	281.1	197.4	180.1	177.8
77.5°	357.9	199.7	155.5	145.5	140.6
80°	268.9	143.2	118.4	108.7	108.7
82.5°	187.5	96.3	81.4	76.4	76.4
85°	106.0	54.2	46.8	46.8	46.8
87.5°	39.5	19.6	19.6	17.2	17.2
90°	2.9	35.6	96.9	91.0	93.9
92.5°	61.3	83.0	86.0	89.0	89.0
95°	144.3	172.0	176.9	176.9	172.0
97.5°	240.2	265.9	276.8	276.8	276.8
100°	350.9	373.6	381.5	381.5	378.6
102.5°	467.6	484.4	495.3	498.2	495.3
105°	595.1	603.0	608.9	613.9	613.9
107.5°	721.6	733.5	733.5	735.4	721.6
110°	844.2	860.0	860.0	860.0	852.1

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	976.6	993.4	990.5	982.6	976.6
115°	1107.2	1122.9	1118.0	1115.1	1107.2
117.5°	1236.7	1258.3	1244.5	1236.7	1228.7
120°	1367.1	1388.9	1367.1	1367.1	1358.2
122.5°	1485.8	1513.4	1499.5	1491.6	1485.8
125°	1610.3	1635.0	1627.0	1618.2	1615.2
127.5°	1731.8	1762.5	1751.6	1739.8	1731.8
130°	1845.5	1881.1	1876.1	1870.2	1859.4
132.5°	1973.0	2000.7	2002.7	1988.9	1980.9
135°	2082.7	2113.4	2119.3	2116.4	2108.5
137.5°	2205.4	2230.0	2235.0	2233.0	2221.2
140°	2313.1	2337.8	2351.6	2351.6	2340.8
142.5°	2423.8	2448.5	2456.4	2459.4	2448.5
145°	2528.5	2548.3	2564.2	2567.1	2556.2
147.5°	2622.5	2647.2	2659.1	2664.0	2653.1
150°	2719.4	2736.2	2747.0	2756.0	2747.0
152.5°	2805.4	2822.1	2836.0	2846.9	2836.0
155°	2891.4	2899.2	2908.2	2922.0	2913.1
157.5°	2965.5	2971.4	2976.3	2996.1	2982.3
160°	3031.7	3037.7	3040.6	3057.5	3045.6
162.5°	3093.0	3093.0	3096.0	3114.8	3100.9
165°	3145.4	3142.4	3142.4	3162.2	3148.3
167.5°	3192.8	3184.0	3184.0	3203.7	3189.9
170°	3228.4	3220.5	3217.6	3237.3	3220.5
172.5°	3253.1	3245.2	3242.3	3262.1	3245.2
175°	3272.9	3265.0	3259.1	3278.9	3262.1
177.5°	3283.8	3275.8	3269.9	3286.8	3269.9
180°	3278.9	3278.9	3278.9	3278.9	3278.9

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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	8.37	9.11	9.43	10.17	11.60	4.34	5.08	5.40	6.14	7.57
	3H	10.04	10.70	11.11	11.77	13.22	5.52	6.19	6.59	7.25	8.71
	4H	10.64	11.27	11.72	12.34	13.80	5.97	6.60	7.05	7.67	9.13
	6H	11.06	11.64	12.15	12.71	14.18	6.29	6.87	7.38	7.94	9.41
	8H	11.19	11.73	12.28	12.82	14.29	6.38	6.93	7.47	8.02	9.48
	12H	11.24	11.77	12.34	12.85	14.34	6.42	6.94	7.52	8.02	9.51
4H	2H	8.37	9.00	9.46	10.07	11.53	4.92	5.55	6.01	6.62	8.08
	3H	10.20	10.72	11.29	11.81	13.29	6.27	6.79	7.36	7.89	9.36
	4H	10.89	11.36	11.98	12.45	13.95	6.81	7.29	7.91	8.38	9.87
	6H	11.40	11.81	12.50	12.92	14.40	7.23	7.64	8.34	8.75	10.24
	8H	11.57	11.95	12.68	13.06	14.56	7.36	7.74	8.46	8.84	10.35
	12H	11.66	12.01	12.79	13.12	14.63	7.42	7.77	8.54	8.88	10.39
8H	4H	10.85	11.23	11.95	12.33	13.83	7.09	7.47	8.19	8.57	10.08
	6H	11.41	11.73	12.54	12.87	14.37	7.61	7.92	8.73	9.07	10.57
	8H	11.63	11.90	12.76	13.03	14.55	7.80	8.07	8.93	9.20	10.72
	12H	11.76	12.01	12.90	13.13	14.68	7.91	8.16	9.05	9.28	10.84
12H	4H	10.79	11.14	11.92	12.26	13.76	7.09	7.44	8.21	8.55	10.06
	6H	11.39	11.66	12.52	12.79	14.31	7.66	7.93	8.79	9.06	10.58
	8H	11.60	11.85	12.74	12.97	14.53	7.86	8.11	9.00	9.23	10.78

END OF REPORT