

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: P926965

Luminaire Tested: DFN2DIP-HX4F0-060D090US830-RLLFLL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P926965
REPORT IS A COMBINATION OF REPORTS P899394 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-060D090US830-RLLFLL
Description: 4 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

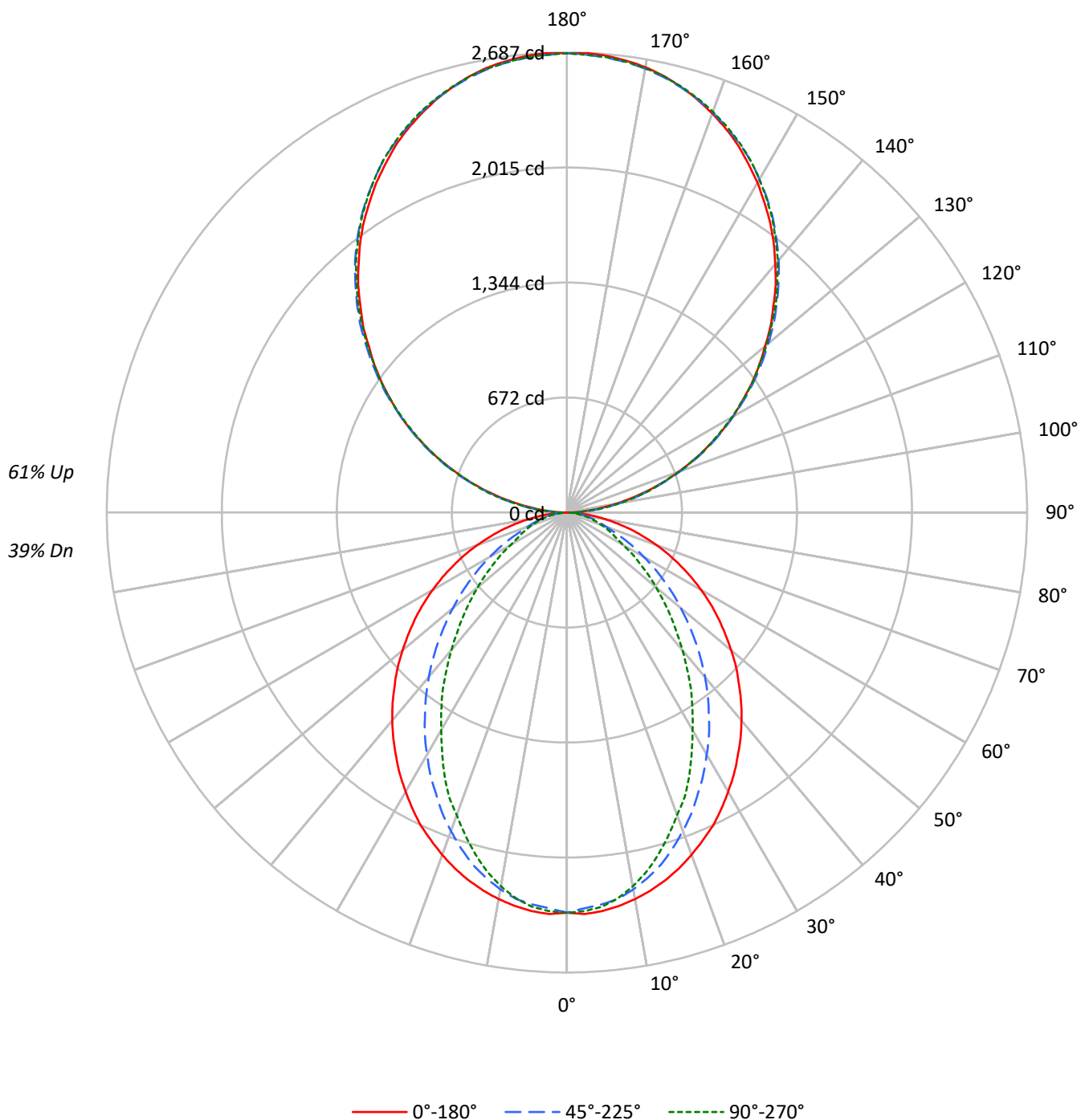
Lumens per Lamp: N/A
Luminaire Lumens: 12313.8 lumens
Efficiency: N/A
Efficacy: 100.9 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 122.1
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.099
Total Harmonic Distortion (THDi): 0.979
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	105	105	105	105	95	95	95	95	77	77	77	61	61	61	46	46	46
1	96	92	88	85	87	83	80	78	68	66	64	54	53	51	41	40	40
2	87	80	75	70	79	73	68	64	60	57	54	48	46	44	37	35	34
3	80	71	64	58	73	65	59	54	53	49	46	43	40	37	33	31	29
4	73	63	55	50	66	58	51	46	48	43	39	38	35	32	30	27	26
5	67	56	48	43	61	52	45	40	43	38	34	35	31	28	27	24	22
6	62	51	43	37	56	46	40	35	39	33	30	31	28	25	25	22	20
7	57	46	38	33	52	42	35	30	35	30	26	29	25	22	22	20	18
8	53	41	34	29	49	38	32	27	32	27	23	26	22	20	21	18	16
9	50	38	31	26	45	35	29	24	29	24	21	24	20	18	19	17	15
10	46	35	28	23	42	32	26	22	27	22	19	22	19	16	18	15	13

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1738	1738	1738
5°	1741	1710	1721
10°	1724	1677	1665
15°	1700	1622	1579
20°	1669	1546	1473
25°	1637	1460	1370
30°	1594	1372	1240
35°	1552	1278	1126
40°	1509	1180	995
45°	1459	1072	876
50°	1407	963	760
55°	1354	846	648
60°	1292	724	534
65°	1220	600	481
70°	1133	484	435
75°	1025	427	396
80°	866	358	344
85°	606	241	259

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 2022 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	219.0	1.8
10°-20°	601.3	4.9
20°-30°	844.2	6.9
30°-40°	920.3	7.5
40°-50°	845.8	6.9
50°-60°	664.3	5.4
60°-70°	432.4	3.5
70°-80°	222.6	1.8
80°-90°	64.4	0.5
90°-100°	166.0	1.3
100°-110°	527.5	4.3
110°-120°	902.7	7.3
120°-130°	1187.1	9.6
130°-140°	1332.5	10.8
140°-150°	1306.6	10.6
150°-160°	1096.1	8.9
160°-170°	726.9	5.9
170°-180°	254.1	2.1
0°-30°	1664.6	13.5
0°-40°	2584.9	21.0
0°-60°	4095.0	33.3
0°-90°	4814.4	39.1
90°-120°	1596.1	13.0
90°-150°	5422.3	44.0
90°-180°	7499.0	60.9
0°-180°	12313.8	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2337	2337	2337	2337	2337	
5°	2337	2327	2299	2318	2312	222
15°	2223	2200	2128	2088	2066	626
25°	2018	1950	1810	1724	1692	928
35°	1739	1631	1445	1311	1265	1088
45°	1421	1280	1058	907	856	1098
55°	1081	916	687	561	520	966
65°	730	558	368	296	290	724
75°	389	241	169	154	152	412
85°	91	46	40	40	40	104
90°	2	29	79	74	77	12
95°	118	141	145	145	141	131
105°	487	493	498	502	502	514
115°	906	919	915	912	906	896
125°	1318	1338	1331	1324	1322	1177
135°	1704	1729	1734	1732	1725	1317
145°	2069	2085	2098	2100	2092	1293
155°	2366	2372	2379	2391	2384	1089
165°	2574	2571	2571	2587	2576	726
175°	2678	2671	2666	2683	2669	254
180°	2683	2683	2683	2683	2683	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2337.2	2337.2	2337.2	2337.2	2337.2
2.5°	2347.8	2337.2	2313.8	2335.1	2330.9
5°	2337.2	2326.7	2299.0	2318.2	2311.9
7.5°	2318.2	2305.5	2275.9	2284.2	2273.7
10°	2292.7	2277.9	2235.8	2229.3	2216.7
12.5°	2261.2	2242.0	2184.8	2172.3	2148.9
15°	2223.0	2199.6	2127.8	2087.6	2066.5
17.5°	2178.6	2144.7	2055.8	2009.3	1975.5
20°	2127.8	2085.4	1979.7	1926.9	1880.3
22.5°	2072.8	2024.1	1901.4	1829.6	1797.9
25°	2017.9	1950.1	1810.5	1723.9	1692.1
27.5°	1952.4	1880.3	1725.9	1626.5	1577.8
30°	1882.5	1802.0	1632.8	1525.1	1467.8
32.5°	1814.8	1717.4	1544.2	1417.1	1364.2
35°	1738.7	1630.8	1444.8	1311.4	1264.7
37.5°	1664.6	1548.2	1351.6	1205.6	1152.8
40°	1586.3	1459.6	1254.2	1104.0	1049.1
42.5°	1506.0	1370.7	1157.0	1000.4	947.7
45°	1421.4	1279.5	1057.7	907.3	856.5
47.5°	1341.1	1190.9	962.5	812.2	765.7
50°	1252.2	1102.1	869.4	723.3	679.1
52.5°	1165.3	1006.7	780.5	640.9	600.7
55°	1080.8	915.8	687.4	560.6	520.4
57.5°	994.1	824.9	605.0	486.5	452.6
60°	905.3	736.1	518.2	410.5	376.5
62.5°	818.7	649.5	444.1	342.7	325.8
65°	729.8	558.3	368.0	296.2	289.7
67.5°	645.1	473.7	296.2	260.1	253.8
70°	556.3	391.3	245.2	224.2	215.6
72.5°	471.7	315.1	205.1	188.3	184.0
75°	389.2	241.0	169.2	154.4	152.4
77.5°	306.8	171.3	133.3	124.8	120.5
80°	230.4	122.7	101.4	93.1	93.1
82.5°	160.7	82.6	69.7	65.5	65.5
85°	90.9	46.5	40.2	40.2	40.2
87.5°	33.9	16.9	16.9	14.8	14.8
90°	2.5	29.1	79.3	74.4	76.8
92.5°	50.1	68.0	70.4	72.8	72.8
95°	118.1	140.7	144.8	144.8	140.7
97.5°	196.5	217.5	226.5	226.5	226.5
100°	287.1	305.7	312.2	312.2	309.8
102.5°	382.6	396.3	405.2	407.6	405.2
105°	486.9	493.3	498.2	502.3	502.3
107.5°	590.4	600.1	600.1	601.7	590.4
110°	690.7	703.7	703.7	703.7	697.2

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	799.1	812.8	810.4	804.0	799.1
115°	905.8	918.7	914.7	912.3	905.8
117.5°	1011.8	1029.6	1018.3	1011.8	1005.3
120°	1118.6	1136.3	1118.6	1118.6	1111.2
122.5°	1215.5	1238.3	1226.9	1220.4	1215.5
125°	1317.5	1337.7	1331.3	1323.9	1321.6
127.5°	1417.0	1442.0	1433.2	1423.5	1417.0
130°	1510.0	1539.1	1535.0	1530.1	1521.3
132.5°	1614.3	1636.9	1638.5	1627.2	1620.8
135°	1704.0	1729.1	1734.0	1731.6	1725.2
137.5°	1804.3	1824.6	1828.6	1827.0	1817.3
140°	1892.5	1912.7	1924.0	1924.0	1915.2
142.5°	1983.1	2003.3	2009.8	2012.2	2003.3
145°	2068.9	2085.0	2097.9	2100.4	2091.5
147.5°	2145.7	2165.9	2175.6	2179.6	2170.8
150°	2225.0	2238.7	2247.6	2254.8	2247.6
152.5°	2295.3	2309.0	2320.3	2329.3	2320.3
155°	2365.7	2372.1	2379.4	2390.7	2383.5
157.5°	2426.3	2431.2	2435.2	2451.3	2440.0
160°	2480.5	2485.4	2487.8	2501.5	2491.8
162.5°	2530.6	2530.6	2533.1	2548.4	2537.1
165°	2573.5	2571.0	2571.0	2587.3	2575.9
167.5°	2612.3	2605.1	2605.1	2621.2	2609.9
170°	2641.5	2634.9	2632.6	2648.7	2634.9
172.5°	2661.6	2655.2	2652.8	2669.0	2655.2
175°	2677.8	2671.3	2666.5	2682.7	2669.0
177.5°	2686.7	2680.3	2675.4	2689.1	2675.4
180°	2682.7	2682.7	2682.7	2682.7	2682.7

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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	7.95	8.70	9.01	9.76	11.18	3.93	4.68	4.98	5.73	7.15
	3H	9.63	10.30	10.69	11.36	12.80	5.11	5.78	6.17	6.84	8.28
	4H	10.23	10.87	11.30	11.93	13.38	5.56	6.19	6.63	7.26	8.70
	6H	10.65	11.23	11.73	12.30	13.76	5.88	6.46	6.96	7.53	8.99
	8H	10.78	11.33	11.86	12.41	13.86	5.97	6.52	7.05	7.60	9.06
	12H	10.83	11.36	11.92	12.44	13.91	6.01	6.54	7.10	7.61	9.09
4H	2H	7.96	8.60	9.04	9.66	11.11	4.51	5.15	5.59	6.21	7.66
	3H	9.79	10.31	10.87	11.40	12.86	5.86	6.39	6.94	7.48	8.93
	4H	10.48	10.96	11.57	12.04	13.52	6.40	6.89	7.50	7.97	9.45
	6H	10.99	11.40	12.09	12.51	13.98	6.82	7.24	7.92	8.34	9.81
	8H	11.16	11.55	12.26	12.64	14.13	6.95	7.34	8.05	8.43	9.92
	12H	11.25	11.60	12.37	12.71	14.21	7.01	7.36	8.13	8.47	9.97
8H	4H	10.44	10.82	11.54	11.92	13.41	6.68	7.07	7.78	8.16	9.65
	6H	11.00	11.32	12.12	12.46	13.95	7.20	7.52	8.32	8.65	10.14
	8H	11.22	11.50	12.35	12.62	14.12	7.39	7.67	8.52	8.79	10.29
	12H	11.36	11.60	12.49	12.72	14.26	7.51	7.75	8.64	8.87	10.41
12H	4H	10.39	10.74	11.50	11.84	13.34	6.68	7.03	7.80	8.14	9.63
	6H	10.98	11.26	12.10	12.38	13.88	7.25	7.53	8.37	8.64	10.15
	8H	11.20	11.44	12.33	12.56	14.10	7.45	7.70	8.59	8.82	10.36

END OF REPORT