

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: P927037

Luminaire Tested: DFN2DIP-HX4F0-080D090US830-RLLFLL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P927037
REPORT IS A COMBINATION OF REPORTS P899398 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-080D090US830-RLLFLL
Description: 4 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

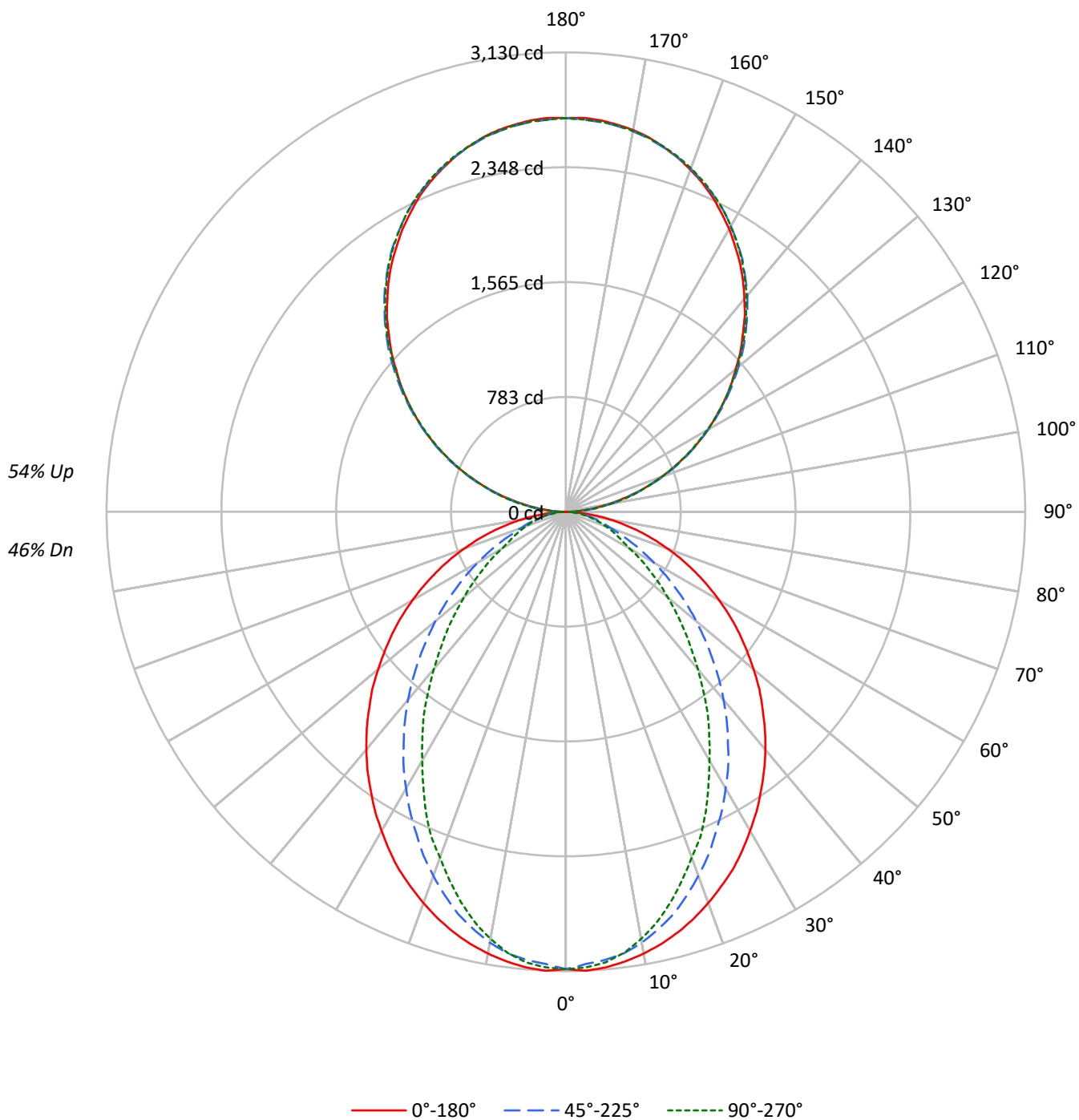
Lumens per Lamp: N/A
Luminaire Lumens: 13916.0 lumens
Efficiency: N/A
Efficacy: 96.2 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 144.6
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9613
Total Harmonic Distortion (THDi): 0.083
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	106	106	106	106	97	97	97	97	81	81	81	66	66	66	53	53	53
1	97	93	90	86	89	86	83	80	72	70	68	59	57	56	47	46	45
2	89	82	76	71	82	75	70	66	63	60	57	52	50	47	42	40	39
3	81	72	65	60	75	67	61	56	56	52	48	47	43	41	38	35	33
4	75	64	57	51	68	59	53	48	50	45	41	42	38	35	34	31	29
5	69	58	50	44	63	53	46	41	45	40	36	38	34	31	31	28	26
6	63	52	44	38	58	48	41	36	41	36	32	34	30	27	28	25	23
7	59	47	39	34	54	44	37	32	37	32	28	31	27	24	26	23	21
8	55	43	35	30	50	40	33	28	34	29	25	29	25	22	24	21	19
9	51	39	32	27	47	36	30	25	31	26	22	26	22	20	22	19	17
10	48	36	29	24	44	33	27	23	29	24	20	25	21	18	20	17	15

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2317	2317	2317
5°	2321	2281	2295
10°	2298	2236	2221
15°	2267	2162	2105
20°	2225	2061	1964
25°	2182	1947	1827
30°	2125	1830	1653
35°	2069	1704	1501
40°	2012	1574	1326
45°	1945	1430	1168
50°	1877	1284	1013
55°	1805	1128	865
60°	1722	965	712
65°	1627	799	641
70°	1511	645	580
75°	1366	569	528
80°	1156	478	458
85°	808	320	345

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°	292.1	2.1
10°-20°	801.8	5.8
20°-30°	1125.7	8.1
30°-40°	1227.0	8.8
40°-50°	1127.8	8.1
50°-60°	885.7	6.4
60°-70°	576.5	4.1
70°-80°	296.8	2.1
80°-90°	83.4	0.6
90°-100°	166.0	1.2
100°-110°	527.5	3.8
110°-120°	902.7	6.5
120°-130°	1187.1	8.5
130°-140°	1332.5	9.6
140°-150°	1306.6	9.4
150°-160°	1096.1	7.9
160°-170°	726.9	5.2
170°-180°	254.1	1.8
0°-30°	2219.5	15.9
0°-40°	3446.5	24.8
0°-60°	5460.0	39.2
0°-90°	6416.6	46.1
90°-120°	1596.1	11.5
90°-150°	5422.3	39.0
90°-180°	7499.0	53.9
0°-180°	13916.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3116	3116	3116	3116	3116	
5°	3116	3102	3065	3091	3082	295
15°	2964	2933	2837	2784	2755	835
25°	2690	2600	2414	2299	2256	1237
35°	2318	2174	1926	1749	1686	1451
45°	1895	1706	1410	1210	1142	1464
55°	1441	1221	916	747	694	1288
65°	973	744	491	395	386	965
75°	519	321	226	206	203	549
85°	121	62	54	54	54	139
90°	2	29	79	74	77	14
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°	3116.3	3116.3	3116.3	3116.3	3116.3
2.5°	3130.3	3116.3	3085.2	3113.5	3107.9
5°	3116.3	3102.2	3065.4	3090.8	3082.4
7.5°	3090.8	3074.1	3034.6	3045.7	3031.6
10°	3057.0	3037.3	2981.0	2972.4	2955.6
12.5°	3014.9	2989.4	2913.1	2896.3	2865.2
15°	2964.0	2932.9	2837.1	2783.6	2755.4
17.5°	2904.7	2859.5	2741.1	2679.2	2633.9
20°	2837.1	2780.6	2639.7	2569.3	2507.0
22.5°	2763.8	2698.8	2535.2	2439.5	2397.2
25°	2690.5	2600.2	2414.0	2298.6	2256.1
27.5°	2603.1	2507.0	2301.2	2168.7	2103.8
30°	2510.1	2402.6	2177.1	2033.4	1957.1
32.5°	2419.7	2289.9	2058.9	1889.5	1818.9
35°	2318.3	2174.3	1926.3	1748.6	1686.3
37.5°	2219.5	2064.3	1802.2	1607.3	1537.0
40°	2115.2	1946.1	1672.3	1472.1	1398.8
42.5°	2008.0	1827.6	1542.7	1333.9	1263.5
45°	1895.2	1706.1	1410.2	1209.7	1142.1
47.5°	1788.1	1587.9	1283.3	1082.8	1020.9
50°	1669.5	1469.5	1159.2	964.4	905.4
52.5°	1553.8	1342.2	1040.6	854.6	801.0
55°	1441.0	1221.1	916.5	747.4	693.9
57.5°	1325.5	1099.9	806.7	648.7	603.5
60°	1207.0	981.4	690.9	547.2	502.1
62.5°	1091.5	865.9	592.2	456.9	434.5
65°	973.0	744.4	490.7	395.0	386.2
67.5°	860.2	631.7	395.0	346.7	338.5
70°	741.7	521.9	327.0	298.9	287.6
72.5°	628.9	420.1	273.5	251.1	245.3
75°	518.8	321.4	225.6	205.8	203.2
77.5°	409.0	228.3	177.8	166.4	160.7
80°	307.3	163.7	135.2	124.1	124.1
82.5°	214.2	110.1	93.0	87.4	87.4
85°	121.2	61.9	53.5	53.5	53.5
87.5°	45.1	22.4	22.4	19.8	19.8
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	9.69	10.49	10.69	11.49	12.82	5.66	6.46	6.66	7.47	8.80
	3H	11.37	12.08	12.37	13.09	14.44	6.85	7.57	7.86	8.58	9.93
	4H	11.97	12.65	12.99	13.67	15.02	7.30	7.98	8.32	8.99	10.35
	6H	12.40	13.02	13.43	14.04	15.41	7.62	8.25	8.65	9.27	10.63
	8H	12.52	13.11	13.56	14.15	15.51	7.71	8.31	8.75	9.34	10.71
	12H	12.58	13.15	13.62	14.17	15.56	7.76	8.32	8.80	9.35	10.74
4H	2H	9.71	10.38	10.73	11.40	12.75	6.26	6.93	7.28	7.95	9.31
	3H	11.53	12.10	12.57	13.14	14.51	7.61	8.17	8.64	9.21	10.58
	4H	12.23	12.74	13.27	13.78	15.17	8.15	8.67	9.19	9.70	11.10
	6H	12.74	13.18	13.79	14.24	15.63	8.57	9.01	9.62	10.07	11.46
	8H	12.91	13.33	13.97	14.38	15.78	8.70	9.11	9.75	10.17	11.57
	12H	13.01	13.38	14.08	14.45	15.86	8.77	9.14	9.84	10.21	11.61
8H	4H	12.19	12.60	13.24	13.65	15.06	8.43	8.84	9.48	9.90	11.30
	6H	12.76	13.10	13.83	14.19	15.59	8.95	9.29	10.03	10.39	11.79
	8H	12.97	13.27	14.06	14.35	15.77	9.14	9.44	10.23	10.52	11.94
	12H	13.11	13.38	14.20	14.45	15.91	9.26	9.53	10.35	10.60	12.06
12H	4H	12.14	12.51	13.21	13.58	14.99	8.44	8.81	9.51	9.87	11.28
	6H	12.73	13.03	13.81	14.11	15.53	9.00	9.30	10.08	10.38	11.80
	8H	12.95	13.22	14.04	14.29	15.75	9.21	9.47	10.30	10.55	12.01