

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: P927041

Luminaire Tested: DFN2DIP-HX4F0-080D100US830-RLLFLL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P927041
REPORT IS A COMBINATION OF REPORTS P899416 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-080D100US830-RLLFLL
Description: 4 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

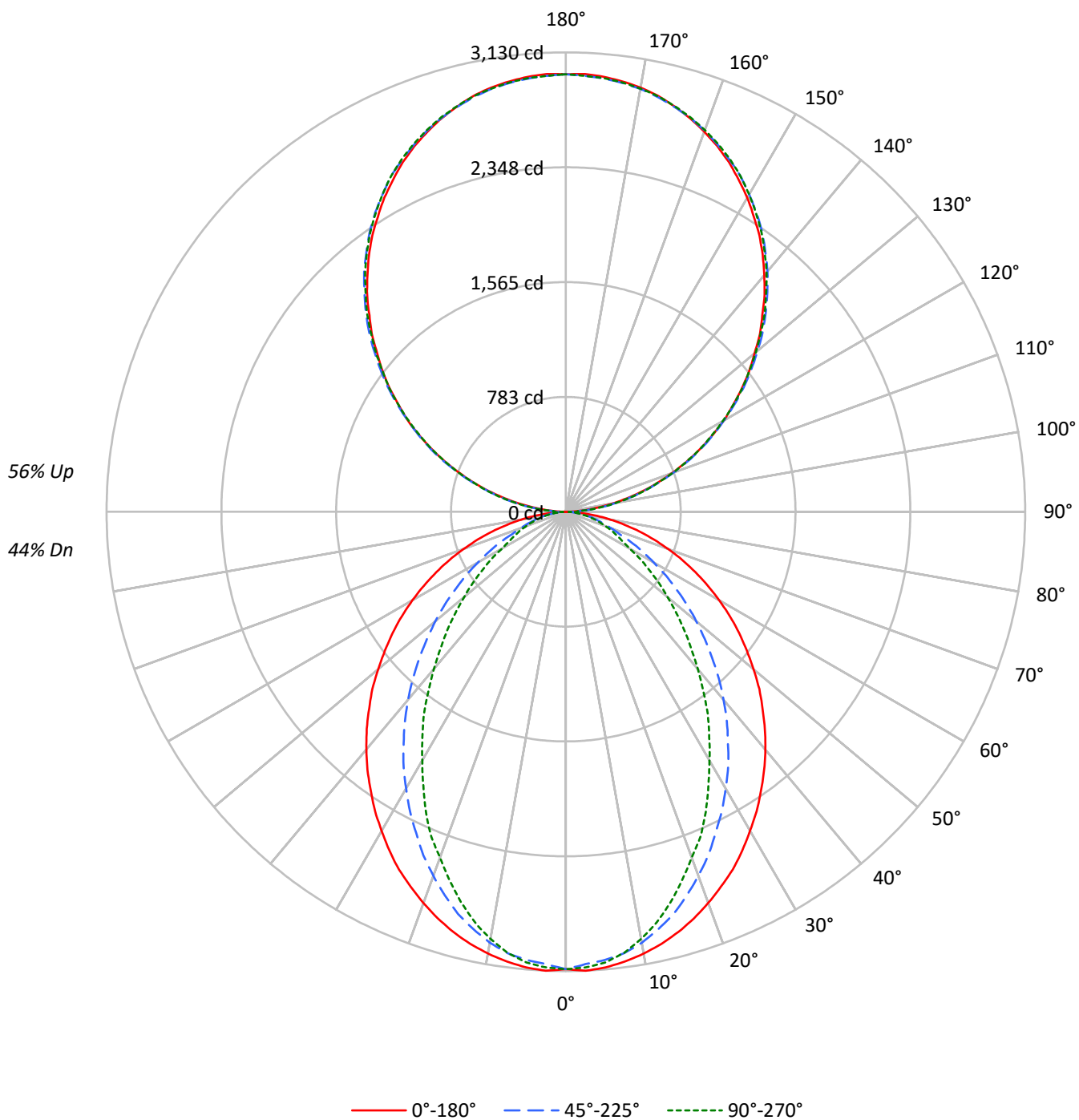
Lumens per Lamp: N/A
Luminaire Lumens: 14750.2 lumens
Efficiency: N/A
Efficacy: 96.5 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 152.8
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	80	80	80	64	64	64	50	50	50
1	97	93	89	86	88	85	82	79	70	68	66	57	56	54	45	44	43
2	88	81	75	71	81	75	70	65	62	59	55	51	48	46	40	38	37
3	81	72	65	59	74	66	60	55	55	51	47	45	42	39	36	34	32
4	74	64	56	50	68	59	52	47	49	44	40	41	37	34	32	30	28
5	68	57	49	43	62	53	46	41	44	39	35	37	33	30	29	27	25
6	63	51	43	38	57	47	41	35	40	35	31	33	29	26	27	24	22
7	58	46	39	33	53	43	36	31	36	31	27	30	26	23	25	22	20
8	54	42	35	30	50	39	32	28	33	28	24	28	24	21	23	20	18
9	50	39	31	26	46	36	29	25	31	25	22	26	22	19	21	18	16
10	47	35	28	24	43	33	27	22	28	23	20	24	20	17	19	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: 2248 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	292.1	2.0
10°-20°	801.8	5.4
20°-30°	1125.7	7.6
30°-40°	1227.0	8.3
40°-50°	1127.8	7.6
50°-60°	885.7	6.0
60°-70°	576.5	3.9
70°-80°	296.8	2.0
80°-90°	84.2	0.6
90°-100°	184.5	1.3
100°-110°	586.1	4.0
110°-120°	1002.9	6.8
120°-130°	1319.0	8.9
130°-140°	1480.5	10.0
140°-150°	1451.8	9.8
150°-160°	1217.9	8.3
160°-170°	807.7	5.5
170°-180°	282.3	1.9
0°-30°	2219.5	15.0
0°-40°	3446.5	23.4
0°-60°	5460.0	37.0
0°-90°	6417.5	43.5
90°-120°	1773.4	12.0
90°-150°	6024.8	40.8
90°-180°	8333.0	56.5
0°-180°	14750.2	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°	3	32	88	83	85	15
95°	131	156	161	161	156	146
105°	541	548	554	558	558	571
115°	1006	1021	1016	1014	1006	995
125°	1464	1486	1479	1471	1468	1308
135°	1893	1921	1927	1924	1917	1464
145°	2299	2317	2331	2334	2324	1436
155°	2628	2636	2644	2656	2648	1210
165°	2860	2857	2857	2875	2862	807
175°	2975	2968	2963	2981	2966	283
180°	2981	2981	2981	2981	2981	

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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°	2.7	32.3	88.0	82.7	85.4
92.5°	55.7	75.5	78.2	80.9	80.9
95°	131.2	156.4	160.9	160.9	156.4
97.5°	218.4	241.8	251.6	251.6	251.6
100°	319.0	339.7	346.8	346.8	344.2
102.5°	425.1	440.3	450.2	452.9	450.2
105°	541.0	548.2	553.5	558.1	558.1
107.5°	656.0	666.8	666.8	668.6	656.0
110°	767.5	781.8	781.8	781.8	774.6

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	887.8	903.1	900.5	893.2	887.8
115°	1006.5	1020.8	1016.4	1013.7	1006.5
117.5°	1124.2	1144.0	1131.4	1124.2	1117.0
120°	1242.8	1262.6	1242.8	1242.8	1234.8
122.5°	1350.6	1375.8	1363.2	1356.1	1350.6
125°	1463.9	1486.3	1479.2	1471.1	1468.4
127.5°	1574.4	1602.2	1592.4	1581.6	1574.4
130°	1677.7	1710.1	1705.6	1700.2	1690.4
132.5°	1793.7	1818.8	1820.6	1808.1	1800.8
135°	1893.4	1921.3	1926.7	1924.0	1916.8
137.5°	2004.9	2027.3	2031.8	2030.1	2019.2
140°	2102.8	2125.2	2137.9	2137.9	2128.0
142.5°	2203.5	2225.9	2233.1	2235.8	2225.9
145°	2298.7	2316.7	2331.1	2333.7	2323.8
147.5°	2384.1	2406.6	2417.3	2421.8	2412.0
150°	2472.2	2487.4	2497.3	2505.4	2497.3
152.5°	2550.3	2565.6	2578.2	2588.1	2578.2
155°	2628.5	2635.7	2643.8	2656.3	2648.2
157.5°	2695.9	2701.3	2705.8	2723.7	2711.2
160°	2756.2	2761.5	2764.2	2779.4	2768.7
162.5°	2811.9	2811.9	2814.5	2831.6	2819.0
165°	2859.5	2856.7	2856.7	2874.7	2862.2
167.5°	2902.6	2894.5	2894.5	2912.5	2899.9
170°	2934.9	2927.8	2925.0	2943.1	2927.8
172.5°	2957.4	2950.2	2947.5	2965.5	2950.2
175°	2975.4	2968.2	2962.8	2980.8	2965.5
177.5°	2985.3	2978.1	2972.6	2987.9	2972.6
180°	2980.8	2980.8	2980.8	2980.8	2980.8

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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	9.43	10.21	10.44	11.23	12.59	5.40	6.18	6.42	7.20	8.57
	3H	11.10	11.80	12.13	12.83	14.21	6.59	7.28	7.61	8.32	9.70
	4H	11.71	12.37	12.75	13.40	14.79	7.04	7.70	8.08	8.73	10.12
	6H	12.13	12.74	13.18	13.77	15.18	7.36	7.96	8.41	9.00	10.40
	8H	12.25	12.83	13.31	13.89	15.28	7.45	8.02	8.50	9.08	10.48
	12H	12.31	12.86	13.37	13.91	15.33	7.49	8.04	8.55	9.09	10.51
4H	2H	9.44	10.10	10.49	11.13	12.52	5.99	6.65	7.04	7.68	9.08
	3H	11.27	11.81	12.32	12.88	14.28	7.34	7.89	8.39	8.95	10.35
	4H	11.96	12.46	13.02	13.51	14.94	7.89	8.39	8.95	9.44	10.87
	6H	12.47	12.90	13.54	13.98	15.40	8.30	8.73	9.37	9.81	11.23
	8H	12.65	13.05	13.71	14.12	15.55	8.43	8.84	9.50	9.90	11.34
	12H	12.74	13.10	13.83	14.18	15.63	8.50	8.86	9.58	9.94	11.38
8H	4H	11.92	12.32	12.99	13.39	14.83	8.16	8.57	9.23	9.63	11.07
	6H	12.49	12.82	13.58	13.93	15.36	8.68	9.01	9.77	10.12	11.56
	8H	12.70	13.00	13.80	14.09	15.54	8.87	9.16	9.97	10.26	11.71
	12H	12.84	13.10	13.94	14.19	15.68	8.99	9.25	10.09	10.34	11.83
12H	4H	11.87	12.23	12.96	13.32	14.76	8.17	8.53	9.25	9.61	11.05
	6H	12.46	12.75	13.56	13.85	15.30	8.73	9.02	9.83	10.12	11.57
	8H	12.68	12.94	13.78	14.03	15.52	8.94	9.20	10.04	10.29	11.78