

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: P913683

Luminaire Tested: DFN2DIP-HX4F0-080D100US927-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P913683
REPORT IS A COMBINATION OF REPORTS P899416 AND P896188
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-080D100US927-RLLFLL
Description: 4 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

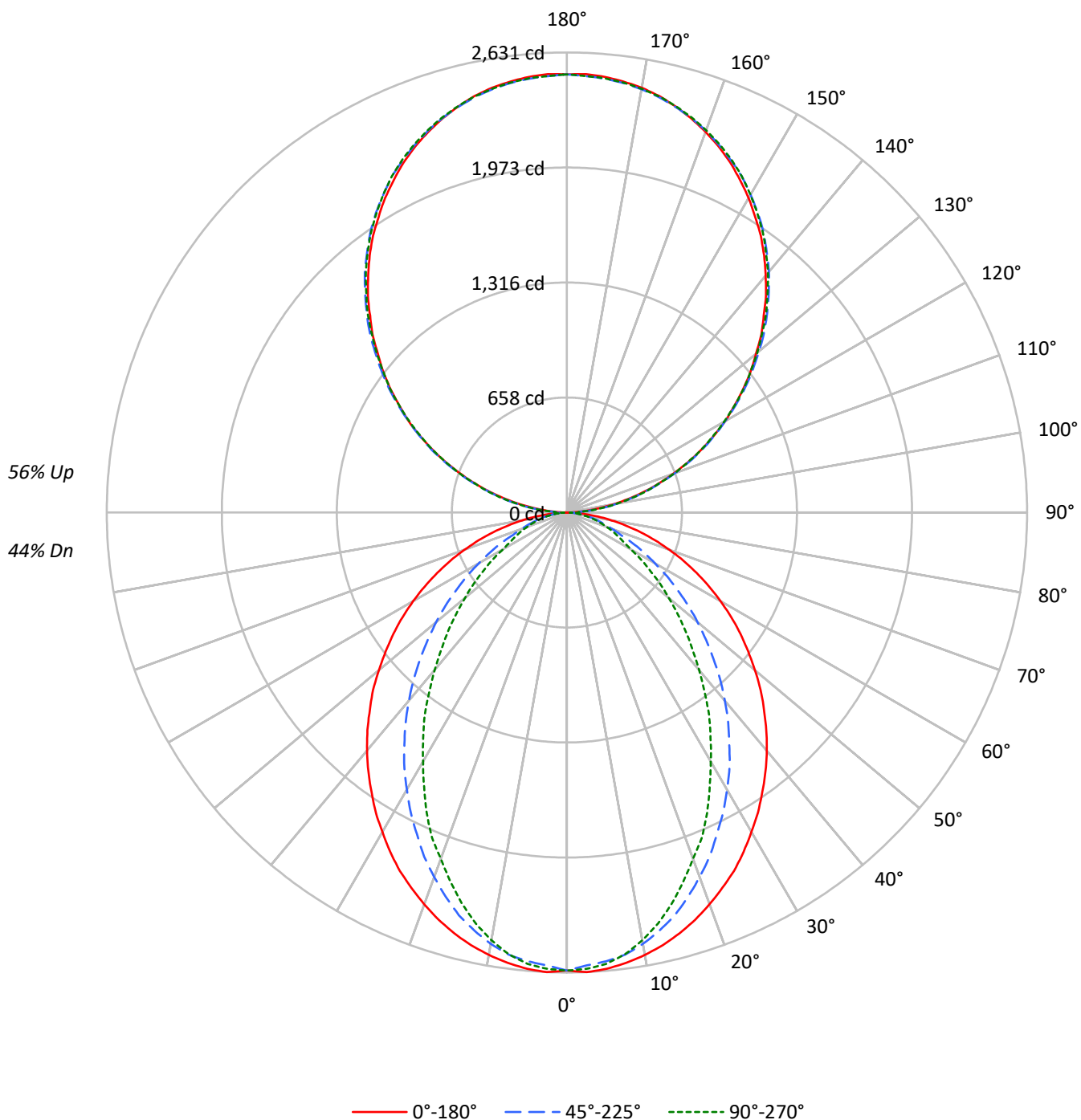
Lumens per Lamp: N/A
Luminaire Lumens: 12397.6 lumens
Efficiency: N/A
Efficacy: 92.2 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 134.4
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°	1948	1948	1948
5°	1951	1917	1929
10°	1932	1879	1866
15°	1905	1818	1769
20°	1870	1732	1650
25°	1834	1636	1535
30°	1786	1538	1390
35°	1739	1432	1262
40°	1691	1323	1115
45°	1635	1202	982
50°	1577	1079	852
55°	1517	948	727
60°	1447	811	598
65°	1367	672	538
70°	1270	542	488
75°	1148	478	444
80°	971	402	385
85°	679	269	290

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 1890 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	245.5	2.0
10°-20°	673.9	5.4
20°-30°	946.1	7.6
30°-40°	1031.3	8.3
40°-50°	947.9	7.6
50°-60°	744.4	6.0
60°-70°	484.5	3.9
70°-80°	249.4	2.0
80°-90°	70.8	0.6
90°-100°	155.0	1.3
100°-110°	492.6	4.0
110°-120°	843.0	6.8
120°-130°	1108.6	8.9
130°-140°	1244.4	10.0
140°-150°	1220.3	9.8
150°-160°	1023.6	8.3
160°-170°	678.9	5.5
170°-180°	237.3	1.9
0°-30°	1865.5	15.0
0°-40°	2896.8	23.4
0°-60°	4589.2	37.0
0°-90°	5393.9	43.5
90°-120°	1490.6	12.0
90°-150°	5063.9	40.8
90°-180°	7004.0	56.5
0°-180°	12397.6	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2619	2619	2619	2619	2619	
5°	2619	2608	2576	2598	2591	248
15°	2491	2465	2385	2340	2316	702
25°	2261	2186	2029	1932	1896	1040
35°	1948	1828	1619	1470	1417	1220
45°	1593	1434	1185	1017	960	1230
55°	1211	1026	770	628	583	1082
65°	818	626	412	332	325	811
75°	436	270	190	173	171	461
85°	102	52	45	45	45	117
90°	2	27	74	70	72	12
95°	110	131	135	135	131	123
105°	455	461	465	469	469	480
115°	846	858	854	852	846	837
125°	1230	1249	1243	1236	1234	1100
135°	1591	1615	1619	1617	1611	1230
145°	1932	1947	1959	1962	1953	1207
155°	2209	2215	2222	2233	2226	1017
165°	2403	2401	2401	2416	2406	678
175°	2501	2495	2490	2505	2492	238
180°	2505	2505	2505	2505	2505	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2619.3	2619.3	2619.3	2619.3	2619.3
2.5°	2631.1	2619.3	2593.1	2617.0	2612.2
5°	2619.3	2607.5	2576.5	2597.9	2590.8
7.5°	2597.9	2583.8	2550.6	2559.9	2548.1
10°	2569.4	2552.9	2505.6	2498.3	2484.2
12.5°	2534.0	2512.6	2448.5	2434.4	2408.2
15°	2491.3	2465.1	2384.6	2339.6	2315.9
17.5°	2441.4	2403.5	2303.9	2251.9	2213.8
20°	2384.6	2337.1	2218.7	2159.6	2107.2
22.5°	2323.0	2268.4	2130.9	2050.4	2014.9
25°	2261.4	2185.5	2029.0	1932.0	1896.2
27.5°	2187.9	2107.2	1934.2	1822.8	1768.2
30°	2109.7	2019.4	1829.9	1709.1	1645.0
32.5°	2033.8	1924.7	1730.5	1588.2	1528.8
35°	1948.5	1827.6	1619.1	1469.7	1417.4
37.5°	1865.5	1735.0	1514.7	1351.0	1291.9
40°	1777.8	1635.7	1405.6	1237.3	1175.7
42.5°	1687.7	1536.1	1296.6	1121.2	1062.0
45°	1592.9	1434.0	1185.3	1016.8	960.0
47.5°	1502.9	1334.7	1078.6	910.1	858.1
50°	1403.3	1235.1	974.3	810.6	761.0
52.5°	1306.0	1128.1	874.6	718.3	673.3
55°	1211.2	1026.3	770.3	628.2	583.2
57.5°	1114.1	924.5	678.0	545.3	507.2
60°	1014.5	824.9	580.7	459.9	422.0
62.5°	917.4	727.8	497.7	384.0	365.2
65°	817.8	625.7	412.4	332.0	324.6
67.5°	723.0	530.9	332.0	291.4	284.5
70°	623.4	438.6	274.9	251.2	241.7
72.5°	528.6	353.1	229.9	211.0	206.2
75°	436.1	270.1	189.6	173.0	170.8
77.5°	343.8	191.9	149.4	139.8	135.1
80°	258.3	137.6	113.7	104.3	104.3
82.5°	180.1	92.5	78.2	73.4	73.4
85°	101.9	52.0	45.0	45.0	45.0
87.5°	37.9	18.9	18.9	16.6	16.6
90°	2.3	27.2	74.0	69.5	71.8
92.5°	46.8	63.5	65.8	68.0	68.0
95°	110.3	131.4	135.2	135.2	131.4
97.5°	183.5	203.2	211.5	211.5	211.5
100°	268.2	285.5	291.5	291.5	289.3
102.5°	357.3	370.1	378.4	380.6	378.4
105°	454.7	460.7	465.2	469.1	469.1
107.5°	551.4	560.5	560.5	562.0	551.4
110°	645.1	657.1	657.1	657.1	651.1

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	746.2	759.1	756.8	750.8	746.2
115°	846.0	858.0	854.3	852.0	846.0
117.5°	944.9	961.5	950.9	944.9	938.8
120°	1044.6	1061.2	1044.6	1044.6	1037.8
122.5°	1135.2	1156.3	1145.8	1139.8	1135.2
125°	1230.4	1249.3	1243.2	1236.4	1234.2
127.5°	1323.3	1346.7	1338.4	1329.4	1323.3
130°	1410.2	1437.3	1433.6	1429.0	1420.8
132.5°	1507.6	1528.8	1530.3	1519.7	1513.6
135°	1591.4	1614.9	1619.4	1617.2	1611.1
137.5°	1685.1	1704.0	1707.8	1706.3	1697.2
140°	1767.4	1786.3	1796.9	1796.9	1788.6
142.5°	1852.0	1870.9	1876.9	1879.2	1870.9
145°	1932.1	1947.2	1959.3	1961.5	1953.2
147.5°	2003.8	2022.8	2031.8	2035.6	2027.3
150°	2077.9	2090.7	2099.0	2105.8	2099.0
152.5°	2143.6	2156.4	2167.0	2175.3	2167.0
155°	2209.3	2215.3	2222.1	2232.7	2225.9
157.5°	2266.0	2270.5	2274.3	2289.3	2278.8
160°	2316.6	2321.1	2323.3	2336.1	2327.1
162.5°	2363.4	2363.4	2365.6	2379.9	2369.4
165°	2403.4	2401.1	2401.1	2416.2	2405.7
167.5°	2439.7	2432.9	2432.9	2448.0	2437.4
170°	2466.9	2460.8	2458.5	2473.7	2460.8
172.5°	2485.7	2479.7	2477.4	2492.5	2479.7
175°	2500.8	2494.8	2490.3	2505.4	2492.5
177.5°	2509.2	2503.1	2498.5	2511.4	2498.5
180°	2505.4	2505.4	2505.4	2505.4	2505.4

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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	8.82	9.60	9.84	10.63	11.99	4.80	5.58	5.81	6.60	7.96
	3H	10.50	11.20	11.53	12.23	13.61	5.98	6.68	7.01	7.71	9.10
	4H	11.11	11.77	12.15	12.80	14.19	6.43	7.09	7.47	8.13	9.52
	6H	11.53	12.13	12.57	13.17	14.57	6.75	7.36	7.80	8.40	9.80
	8H	11.65	12.23	12.71	13.28	14.68	6.84	7.42	7.90	8.47	9.87
	12H	11.71	12.26	12.77	13.31	14.73	6.89	7.43	7.94	8.48	9.90
4H	2H	8.84	9.50	9.88	10.53	11.92	5.39	6.05	6.43	7.08	8.47
	3H	10.66	11.21	11.72	12.27	13.68	6.73	7.28	7.79	8.34	9.75
	4H	11.35	11.86	12.41	12.91	14.33	7.28	7.78	8.34	8.84	10.26
	6H	11.87	12.30	12.94	13.37	14.80	7.70	8.13	8.77	9.21	10.63
	8H	12.04	12.44	13.11	13.51	14.95	7.83	8.23	8.90	9.30	10.74
	12H	12.13	12.50	13.22	13.58	15.02	7.89	8.26	8.98	9.34	10.78
8H	4H	11.32	11.72	12.39	12.79	14.22	7.56	7.96	8.63	9.03	10.47
	6H	11.88	12.22	12.98	13.33	14.76	8.08	8.41	9.17	9.52	10.95
	8H	12.10	12.39	13.20	13.49	14.94	8.27	8.56	9.37	9.65	11.11
	12H	12.24	12.49	13.34	13.58	15.08	8.39	8.64	9.49	9.73	11.23
12H	4H	11.27	11.63	12.35	12.71	14.15	7.56	7.93	8.65	9.01	10.45
	6H	11.86	12.15	12.96	13.24	14.70	8.13	8.42	9.23	9.51	10.97
	8H	12.08	12.33	13.18	13.42	14.92	8.34	8.59	9.44	9.68	11.17