

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: P927015

Luminaire Tested: DFN2DIP-HX4F0-080D040US830-FLLFLL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P927015
REPORT IS A COMBINATION OF REPORTS P899307 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-080D040US830-FLLFLL
Description: 4 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

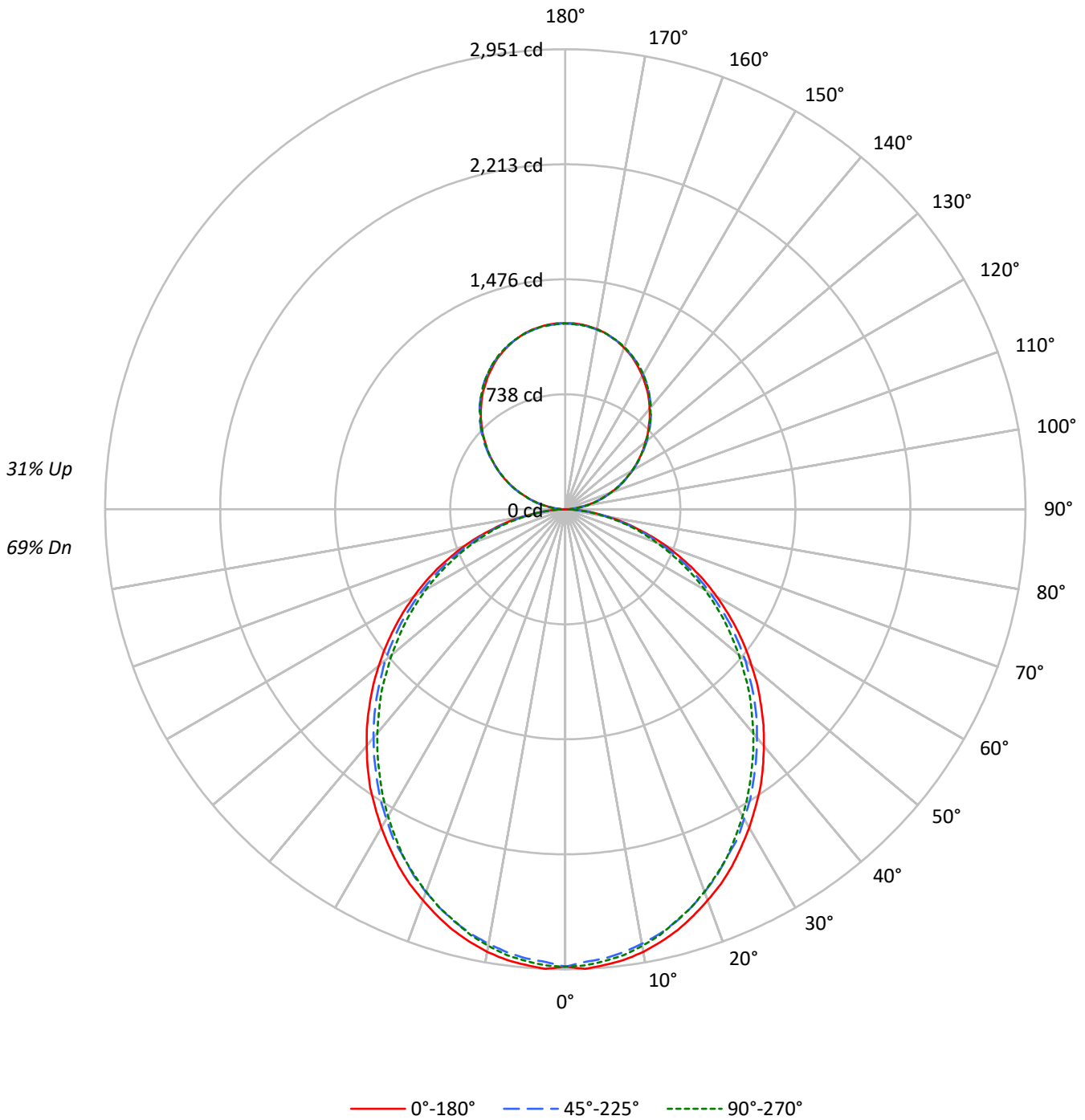
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 10801.1 lumens
Efficiency: N/A
Efficacy: 101.1 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 106.8
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				20
RC	80				70				50				30				10				0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	0
RCR																					
0	112	112	112	112	106	106	106	106	94	94	94	83	83	83	74	74	74	69			
1	102	98	94	90	96	92	89	86	83	80	77	74	71	70	65	64	62	58			
2	93	85	79	74	88	81	75	70	72	68	64	65	61	58	57	55	52	49			
3	85	75	67	61	80	71	64	59	64	58	54	57	53	49	51	48	45	41			
4	78	67	58	52	73	63	56	50	57	51	46	51	46	42	46	42	39	35			
5	71	59	51	45	67	56	49	43	51	45	40	46	41	37	41	37	34	31			
6	66	53	45	39	62	51	43	38	46	40	35	41	36	32	37	33	30	27			
7	61	48	40	34	58	46	39	33	42	36	31	38	33	29	34	30	26	24			
8	57	44	36	31	54	42	35	30	38	32	28	35	29	26	31	27	24	22			
9	53	40	33	27	50	39	31	26	35	29	25	32	27	23	29	25	21	19			
10	50	37	30	25	47	36	29	24	32	27	22	30	25	21	27	23	20	18			

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2181	2181	2181
5°	2185	2151	2166
10°	2168	2123	2137
15°	2136	2088	2091
20°	2093	2039	2044
25°	2050	1982	1990
30°	1997	1928	1921
35°	1946	1864	1848
40°	1884	1800	1779
45°	1822	1736	1708
50°	1753	1668	1626
55°	1682	1591	1550
60°	1602	1498	1464
65°	1514	1402	1362
70°	1402	1285	1252
75°	1247	1145	1151
80°	1062	967	958
85°	771	659	637

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 1822 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	276.1	2.6
10°-20°	776.9	7.2
20°-30°	1141.8	10.6
30°-40°	1326.1	12.3
40°-50°	1324.5	12.3
50°-60°	1154.9	10.7
60°-70°	853.7	7.9
70°-80°	483.0	4.5
80°-90°	130.9	1.2
90°-100°	73.8	0.7
100°-110°	234.4	2.2
110°-120°	401.2	3.7
120°-130°	527.6	4.9
130°-140°	592.2	5.5
140°-150°	580.7	5.4
150°-160°	487.2	4.5
160°-170°	323.1	3.0
170°-180°	112.9	1.0
0°-30°	2194.9	20.3
0°-40°	3521.0	32.6
0°-60°	6000.4	55.6
0°-90°	7468.0	69.1
90°-120°	709.4	6.6
90°-150°	2409.9	22.3
90°-180°	3333.0	30.9
0°-180°	10801.1	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2934	2934	2934	2934	2934	
5°	2934	2923	2892	2914	2909	278
15°	2793	2776	2739	2751	2737	787
25°	2528	2505	2457	2463	2457	1163
35°	2181	2153	2107	2090	2076	1362
45°	1775	1755	1712	1682	1670	1370
55°	1343	1326	1292	1258	1244	1201
65°	906	889	860	835	821	895
75°	474	468	454	437	443	506
85°	116	113	110	102	99	129
90°	1	13	35	33	34	10
95°	52	63	64	64	63	58
105°	216	219	221	223	223	228
115°	402	408	406	406	402	398
125°	586	594	592	588	587	523
135°	757	768	771	770	767	585
145°	920	927	932	934	930	575
155°	1051	1054	1058	1063	1059	484
165°	1144	1143	1143	1150	1145	323
175°	1190	1187	1185	1192	1186	113
180°	1192	1192	1192	1192	1192	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2933.8	2933.8	2933.8	2933.8	2933.8
2.5°	2950.9	2936.8	2905.7	2933.8	2928.4
5°	2933.8	2922.8	2891.7	2914.1	2908.7
7.5°	2914.1	2897.3	2866.2	2889.0	2883.3
10°	2883.3	2863.5	2829.7	2852.1	2843.8
12.5°	2840.8	2824.0	2790.2	2804.2	2798.6
15°	2792.9	2776.1	2739.3	2750.7	2736.6
17.5°	2733.6	2716.9	2680.0	2694.1	2680.0
20°	2668.7	2651.9	2612.4	2620.8	2609.7
22.5°	2604.0	2578.6	2541.7	2541.7	2536.1
25°	2527.7	2505.3	2457.4	2462.8	2457.4
27.5°	2443.0	2423.3	2386.7	2378.3	2364.3
30°	2358.6	2335.8	2293.7	2285.3	2273.9
32.5°	2268.2	2251.4	2206.2	2189.1	2177.8
35°	2180.8	2152.7	2107.4	2090.4	2076.3
37.5°	2082.0	2056.5	2011.4	1991.6	1977.6
40°	1980.6	1957.8	1912.6	1887.5	1876.0
42.5°	1881.8	1859.0	1814.1	1785.7	1769.0
45°	1774.6	1754.8	1712.3	1681.5	1670.2
47.5°	1670.2	1650.4	1605.2	1574.1	1557.3
50°	1560.0	1546.0	1506.4	1466.9	1452.9
52.5°	1452.9	1433.1	1396.6	1365.5	1345.7
55°	1343.0	1325.9	1292.2	1258.3	1244.2
57.5°	1232.9	1218.8	1182.0	1148.2	1136.7
60°	1122.7	1111.7	1072.1	1041.0	1032.6
62.5°	1015.5	995.8	967.7	939.6	928.2
65°	905.7	888.7	860.5	835.1	821.0
67.5°	792.8	778.5	753.3	733.6	722.2
70°	688.4	677.0	651.6	631.9	620.7
72.5°	581.2	569.9	555.8	536.1	527.7
75°	473.8	468.4	454.1	437.3	443.0
77.5°	378.0	366.6	361.0	352.6	344.2
80°	282.3	279.3	273.6	265.2	259.5
82.5°	191.9	191.9	189.2	177.8	177.8
85°	115.6	112.8	110.2	101.5	98.8
87.5°	50.9	45.2	39.5	31.1	28.2
90°	1.0	12.9	35.2	33.1	34.1
92.5°	22.2	30.2	31.3	32.3	32.3
95°	52.5	62.6	64.4	64.4	62.6
97.5°	87.4	96.7	100.7	100.7	100.7
100°	127.6	135.9	138.7	138.7	137.7
102.5°	170.0	176.2	180.1	181.1	180.1
105°	216.4	219.2	221.4	223.2	223.2
107.5°	262.4	266.7	266.7	267.4	262.4
110°	307.0	312.7	312.7	312.7	309.9



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	355.1	361.3	360.1	357.3	355.1
115°	402.5	408.4	406.5	405.5	402.5
117.5°	449.7	457.6	452.6	449.7	446.8
120°	497.2	505.0	497.2	497.2	493.9
122.5°	540.2	550.3	545.3	542.4	540.2
125°	585.6	594.5	591.7	588.4	587.4
127.5°	629.8	640.9	636.9	632.6	629.8
130°	671.1	684.1	682.3	680.1	676.1
132.5°	717.4	727.5	728.3	723.2	720.4
135°	757.4	768.5	770.7	769.6	766.7
137.5°	802.0	810.9	812.7	812.0	807.7
140°	841.1	850.1	855.1	855.1	851.2
142.5°	881.4	890.4	893.2	894.3	890.4
145°	919.5	926.7	932.4	933.5	929.6
147.5°	953.6	962.6	966.9	968.7	964.7
150°	988.9	995.0	999.0	1002.2	999.0
152.5°	1020.2	1026.2	1031.3	1035.2	1031.3
155°	1051.4	1054.3	1057.5	1062.6	1059.3
157.5°	1078.4	1080.5	1082.3	1089.5	1084.4
160°	1102.4	1104.6	1105.6	1111.8	1107.4
162.5°	1124.7	1124.7	1125.8	1132.6	1127.6
165°	1143.8	1142.7	1142.7	1149.8	1144.9
167.5°	1161.1	1157.8	1157.8	1165.0	1159.9
170°	1174.0	1171.1	1170.0	1177.2	1171.1
172.5°	1182.9	1180.1	1179.0	1186.2	1180.1
175°	1190.2	1187.3	1185.1	1192.3	1186.2
177.5°	1194.1	1191.2	1189.1	1195.2	1189.1
180°	1192.3	1192.3	1192.3	1192.3	1192.3



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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	11.59	12.65	12.36	13.45	14.41	11.15	12.22	11.93	13.01	13.98
	3H	13.26	14.22	14.05	15.02	16.02	12.79	13.74	13.58	14.55	15.55
	4H	13.86	14.76	14.66	15.58	16.59	13.39	14.29	14.19	15.10	16.11
	6H	14.27	15.10	15.09	15.93	16.95	13.79	14.63	14.61	15.45	16.47
	8H	14.38	15.17	15.21	16.02	17.04	13.91	14.70	14.73	15.54	16.56
	12H	14.44	15.19	15.27	16.03	17.08	13.96	14.71	14.79	15.55	16.60
4H	2H	12.07	12.97	12.88	13.79	14.80	11.73	12.63	12.54	13.44	14.45
	3H	13.96	14.71	14.78	15.56	16.58	13.56	14.32	14.38	15.17	16.19
	4H	14.68	15.37	15.51	16.21	17.27	14.27	14.96	15.11	15.81	16.86
	6H	15.21	15.80	16.06	16.67	17.73	14.80	15.39	15.65	16.26	17.32
	8H	15.36	15.92	16.22	16.78	17.85	14.95	15.51	15.80	16.37	17.44
	12H	15.45	15.95	16.32	16.83	17.91	15.02	15.52	15.90	16.41	17.49
8H	4H	14.89	15.45	15.75	16.31	17.39	14.53	15.09	15.39	15.95	17.03
	6H	15.53	16.00	16.42	16.90	17.97	15.17	15.63	16.05	16.54	17.61
	8H	15.76	16.17	16.65	17.07	18.16	15.39	15.80	16.28	16.70	17.79
	12H	15.90	16.26	16.80	17.15	18.29	15.52	15.88	16.41	16.77	17.91
12H	4H	14.89	15.39	15.76	16.28	17.35	14.54	15.04	15.41	15.92	17.00
	6H	15.57	15.98	16.46	16.88	17.97	15.21	15.62	16.11	16.53	17.61
	8H	15.82	16.18	16.71	17.07	18.21	15.46	15.82	16.36	16.72	17.86