

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: P929200

Luminaire Tested: DFN2DIP-HX4F0-050D100US940-FLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P929200
REPORT IS A COMBINATION OF REPORTS P900929 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-050D100US940-FLLONL
Description: 4 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

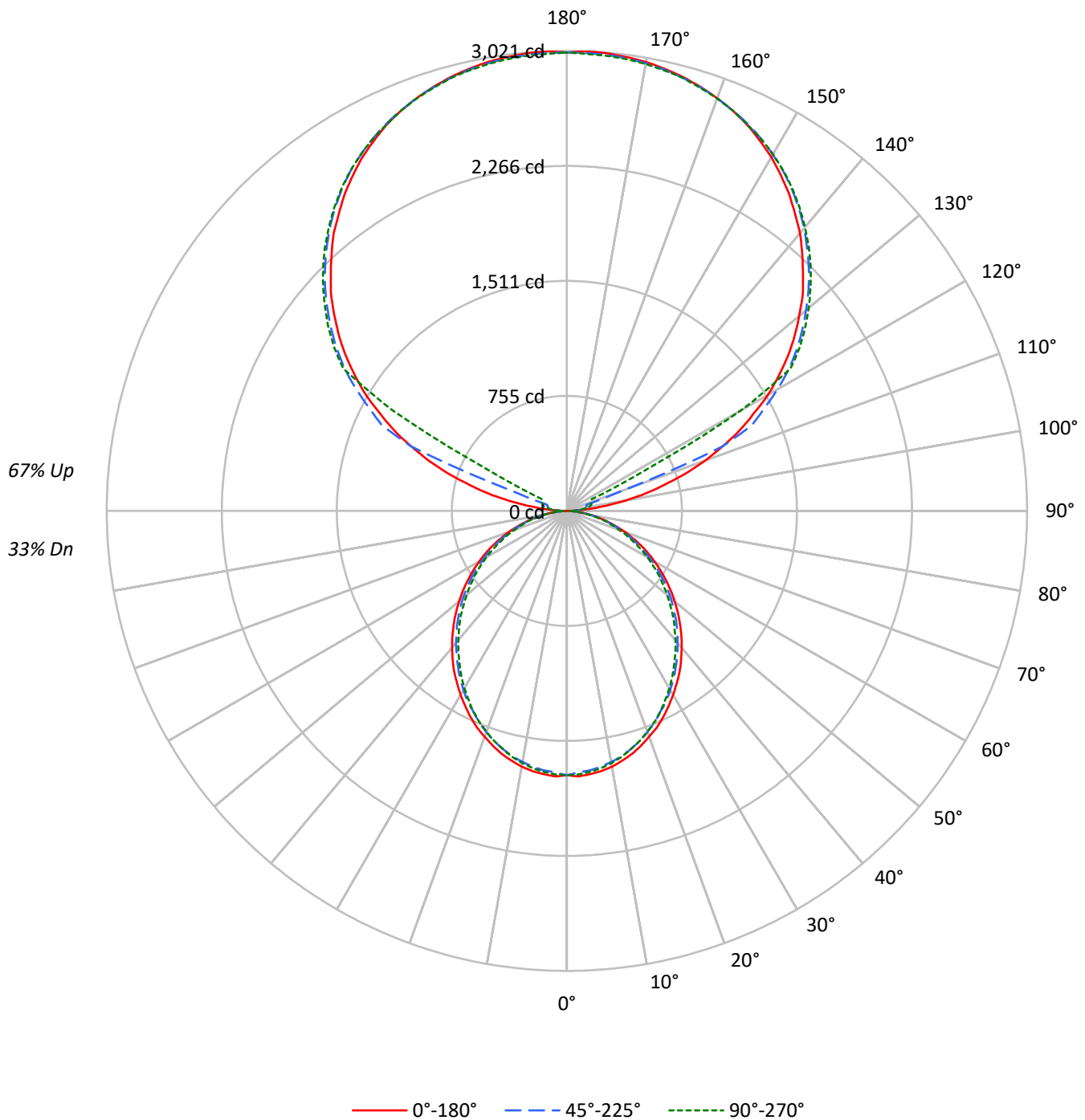
Lumens per Lamp: N/A
Luminaire Lumens: 13246.2 lumens
Efficiency: N/A
Efficacy: 110.6 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 119.8
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9957
Total Harmonic Distortion (THDi): 0.049
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	103	103	103	103	93	93	93	93	74	74	74	57	57	57	41	41	41
1	94	90	86	83	85	81	78	75	65	63	61	50	48	47	36	35	34
2	86	78	72	67	77	71	66	62	57	53	50	44	41	39	32	30	29
3	78	69	62	56	70	62	56	51	50	46	42	39	36	33	28	26	25
4	71	61	53	47	64	55	49	43	44	40	36	34	31	28	25	23	21
5	65	54	46	40	59	49	42	37	40	35	31	31	27	25	23	20	18
6	60	48	41	35	54	44	37	32	36	31	27	28	24	21	20	18	16
7	56	44	36	30	50	40	33	28	32	27	23	25	22	19	19	16	14
8	51	39	32	27	46	36	29	25	29	24	21	23	19	17	17	15	13
9	48	36	29	24	43	33	26	22	27	22	19	21	18	15	16	13	12
10	45	33	26	21	40	30	24	20	25	20	17	19	16	14	15	12	11

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1290	1290	1290
5°	1293	1273	1281
10°	1282	1256	1264
15°	1263	1235	1237
20°	1238	1206	1209
25°	1213	1172	1177
30°	1181	1140	1136
35°	1151	1103	1093
40°	1114	1065	1052
45°	1077	1027	1010
50°	1037	987	962
55°	995	941	917
60°	947	886	866
65°	896	829	806
70°	830	760	741
75°	738	677	681
80°	628	572	567
85°	455	389	377

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 1545 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	163.3	1.2
10°-20°	459.6	3.5
20°-30°	675.4	5.1
30°-40°	784.4	5.9
40°-50°	783.4	5.9
50°-60°	683.1	5.2
60°-70°	505.0	3.8
70°-80°	285.7	2.2
80°-90°	80.7	0.6
90°-100°	99.3	0.7
100°-110°	370.0	2.8
110°-120°	981.4	7.4
120°-130°	1627.8	12.3
130°-140°	1729.1	13.1
140°-150°	1607.0	12.1
150°-160°	1292.0	9.8
160°-170°	832.5	6.3
170°-180°	286.5	2.2
0°-30°	1298.3	9.8
0°-40°	2082.7	15.7
0°-60°	3549.3	26.8
0°-90°	4420.7	33.4
90°-120°	1450.7	11.0
90°-150°	6414.5	48.4
90°-180°	8826.0	66.6
0°-180°	13246.2	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1735	1735	1735	1735	1735	
5°	1735	1729	1710	1724	1721	165
15°	1652	1642	1620	1627	1619	465
25°	1495	1482	1454	1457	1454	688
35°	1290	1273	1247	1236	1228	806
45°	1050	1038	1013	995	988	810
55°	794	784	764	744	736	710
65°	536	526	509	494	486	530
75°	280	277	269	259	262	299
85°	68	67	65	60	58	76
90°	2	26	43	55	59	12
95°	142	70	85	96	94	168
105°	662	728	133	157	166	708
115°	1252	1290	1344	336	179	1233
125°	1771	1799	1841	1856	1862	1579
135°	2192	2226	2246	2268	2263	1693
145°	2542	2540	2577	2592	2581	1590
155°	2799	2780	2806	2819	2801	1290
165°	2949	2936	2943	2958	2943	833
175°	3017	3002	3006	3021	3000	287
180°	3010	3010	3010	3010	3010	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1735.4	1735.4	1735.4	1735.4	1735.4
2.5°	1745.5	1737.2	1718.8	1735.4	1732.3
5°	1735.4	1728.9	1710.4	1723.7	1720.6
7.5°	1723.7	1713.8	1695.4	1708.9	1705.5
10°	1705.5	1693.8	1673.8	1687.0	1682.1
12.5°	1680.3	1670.4	1650.5	1658.8	1655.4
15°	1652.0	1642.1	1620.3	1627.1	1618.7
17.5°	1616.9	1607.0	1585.3	1593.6	1585.3
20°	1578.6	1568.7	1545.3	1550.2	1543.7
22.5°	1540.3	1525.2	1503.5	1503.5	1500.1
25°	1495.2	1481.9	1453.5	1456.7	1453.5
27.5°	1445.0	1433.4	1411.8	1406.8	1398.5
30°	1395.1	1381.7	1356.7	1351.7	1345.0
32.5°	1341.7	1331.8	1305.0	1294.9	1288.2
35°	1289.9	1273.3	1246.6	1236.5	1228.2
37.5°	1231.5	1216.5	1189.7	1178.1	1169.8
40°	1171.6	1158.1	1131.3	1116.4	1109.7
42.5°	1113.1	1099.7	1073.1	1056.2	1046.3
45°	1049.7	1038.0	1012.9	994.7	987.9
47.5°	987.9	976.2	949.5	931.1	921.2
50°	922.8	914.5	891.1	867.7	859.4
52.5°	859.4	847.7	826.1	807.7	796.0
55°	794.4	784.3	764.3	744.3	736.0
57.5°	729.2	720.9	699.1	679.2	672.4
60°	664.1	657.6	634.2	615.7	610.8
62.5°	600.8	589.1	572.4	555.7	549.0
65°	535.7	525.7	509.0	494.0	485.6
67.5°	469.0	460.5	445.6	434.0	427.2
70°	407.2	400.5	385.4	373.7	367.2
72.5°	343.9	337.1	328.8	317.1	312.1
75°	280.3	277.1	268.6	258.7	262.1
77.5°	223.6	216.8	213.5	208.5	203.6
80°	167.0	165.2	161.8	156.9	153.5
82.5°	113.5	113.5	111.9	105.2	105.2
85°	68.3	66.7	65.1	60.0	58.4
87.5°	30.1	26.8	23.4	18.4	16.7
90°	2.1	26.1	43.4	54.6	58.7
92.5°	54.6	45.8	52.3	56.6	58.7
95°	141.5	69.6	84.8	96.0	93.7
97.5°	254.8	76.3	111.0	117.7	119.8
100°	385.7	87.1	124.2	141.5	145.9
102.5°	529.2	525.1	128.5	152.4	159.0
105°	662.2	727.6	133.0	156.7	165.6
107.5°	816.9	871.2	137.4	161.2	169.9
110°	965.1	1010.6	381.2	163.5	172.0

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1104.5	1143.5	1106.6	167.6	174.4
115°	1252.5	1289.5	1344.1	335.5	178.8
117.5°	1381.0	1424.5	1461.7	1150.1	579.4
120°	1524.9	1557.4	1596.8	1622.9	1328.8
122.5°	1646.7	1681.6	1725.3	1738.2	1740.6
125°	1770.9	1799.3	1840.7	1856.0	1862.4
127.5°	1884.2	1914.7	1947.5	1969.3	1971.3
130°	1990.9	2025.9	2049.7	2073.7	2071.7
132.5°	2099.9	2128.3	2152.1	2171.8	2169.7
135°	2191.5	2226.3	2245.8	2267.7	2263.4
137.5°	2287.2	2313.3	2335.3	2357.0	2350.5
140°	2380.7	2398.4	2422.1	2441.8	2431.0
142.5°	2459.4	2474.7	2502.9	2520.2	2509.4
145°	2542.2	2539.9	2576.9	2592.2	2581.3
147.5°	2613.8	2607.4	2644.3	2655.2	2646.7
150°	2683.7	2668.4	2703.4	2716.3	2705.4
152.5°	2742.4	2725.1	2757.7	2770.8	2755.6
155°	2799.1	2779.7	2805.8	2818.7	2801.4
157.5°	2844.9	2827.6	2847.2	2862.4	2844.9
160°	2884.2	2871.0	2884.2	2897.1	2881.9
162.5°	2918.8	2905.9	2916.8	2932.0	2912.4
165°	2949.3	2936.4	2942.9	2958.1	2942.9
167.5°	2973.4	2960.2	2967.0	2982.2	2962.5
170°	2993.0	2979.9	2984.3	2999.5	2979.9
172.5°	3006.0	2993.0	2997.5	3012.7	2993.0
175°	3016.8	3001.6	3006.0	3021.3	2999.5
177.5°	3021.3	3006.0	3008.4	3023.6	3003.9
180°	3010.4	3010.4	3010.4	3010.4	3010.4

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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	6.39	7.11	7.47	8.20	9.69	5.95	6.68	7.04	7.77	9.26
	3H	8.04	8.69	9.13	9.79	11.29	7.56	8.22	8.66	9.31	10.82
	4H	8.62	9.24	9.73	10.34	11.85	8.15	8.77	9.25	9.86	11.38
	6H	9.01	9.58	10.13	10.68	12.21	8.54	9.11	9.65	10.21	11.73
	8H	9.11	9.66	10.23	10.77	12.29	8.64	9.18	9.76	10.30	11.82
	12H	9.16	9.67	10.28	10.78	12.33	8.68	9.19	9.80	10.30	11.84
4H	2H	6.83	7.45	7.95	8.55	10.06	6.49	7.11	7.60	8.20	9.72
	3H	8.69	9.20	9.81	10.33	11.85	8.29	8.81	9.41	9.93	11.46
	4H	9.40	9.87	10.52	10.98	12.53	8.99	9.47	10.12	10.58	12.13
	6H	9.90	10.31	11.04	11.45	12.99	9.50	9.90	10.63	11.04	12.58
	8H	10.05	10.43	11.18	11.56	13.11	9.64	10.02	10.77	11.15	12.70
	12H	10.12	10.46	11.27	11.60	13.16	9.70	10.04	10.85	11.18	12.74
8H	4H	9.58	9.96	10.71	11.09	12.65	9.22	9.60	10.35	10.73	12.29
	6H	10.21	10.52	11.36	11.69	13.25	9.85	10.16	11.00	11.33	12.88
	8H	10.43	10.70	11.59	11.85	13.43	10.06	10.34	11.22	11.48	13.06
	12H	10.56	10.80	11.72	11.94	13.55	10.17	10.41	11.33	11.56	13.17
12H	4H	9.56	9.91	10.71	11.05	12.61	9.21	9.56	10.36	10.69	12.25
	6H	10.24	10.51	11.40	11.66	13.23	9.89	10.16	11.05	11.31	12.88
	8H	10.48	10.72	11.64	11.86	13.47	10.12	10.36	11.28	11.51	13.11

END OF REPORT