

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: P927216

Luminaire Tested: DFN2DIP-HX4F0-040D090US835-FLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P927216
REPORT IS A COMBINATION OF REPORTS P900909 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-040D090US835-FLLONL
Description: 4 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

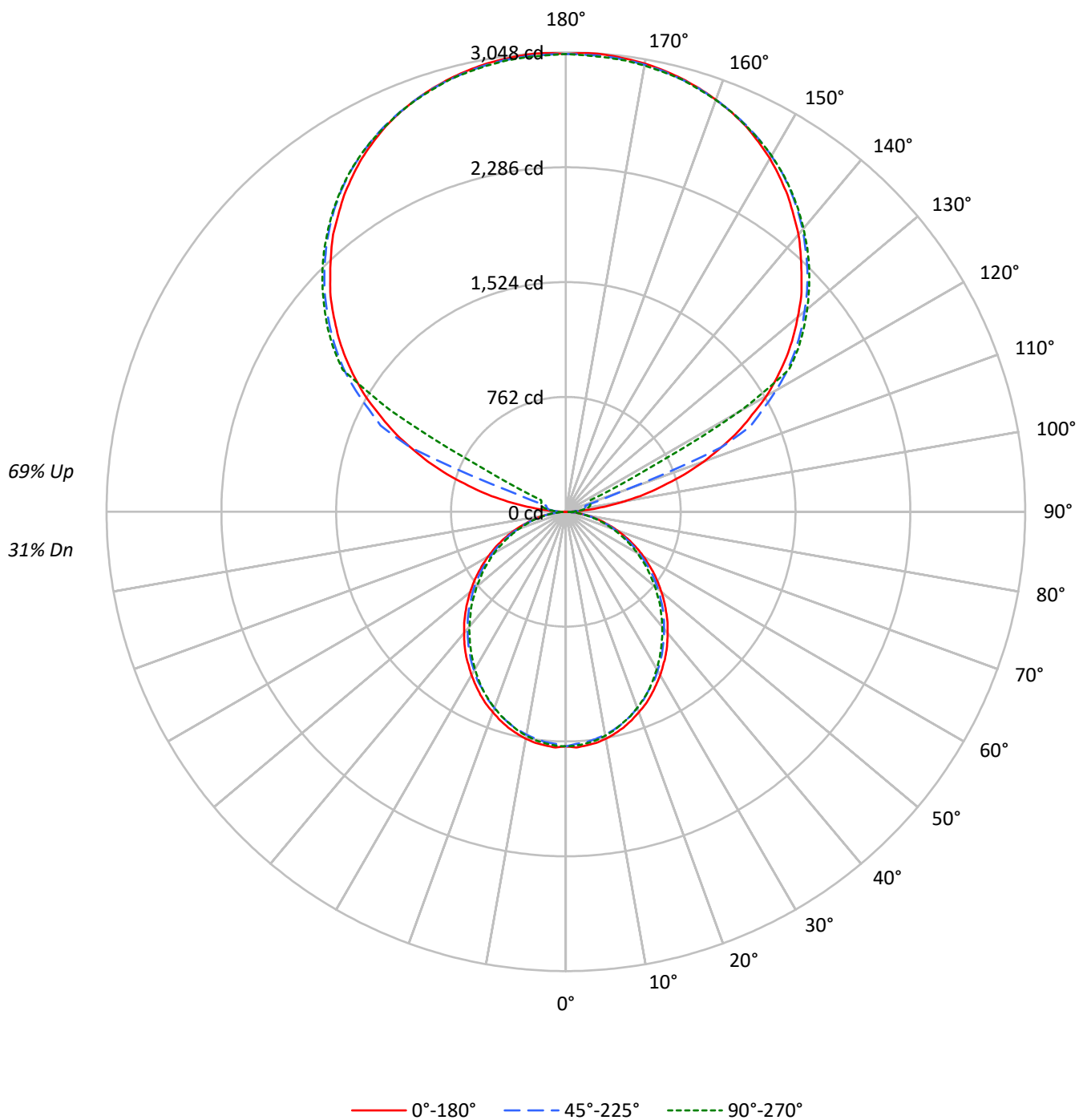
Lumens per Lamp: N/A
Luminaire Lumens: 12870.0 lumens
Efficiency: N/A
Efficacy: 127.2 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 101.2
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9977
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	92	92	92	92	73	73	73	55	55	55	38	38	38
1	93	89	86	82	84	80	77	74	64	61	59	48	47	46	34	33	32
2	85	78	72	67	76	70	65	61	56	52	49	42	40	38	30	29	27
3	78	68	61	56	69	62	56	51	49	45	41	37	35	32	26	25	23
4	71	60	53	47	63	55	48	43	44	39	35	33	30	27	24	22	20
5	65	54	46	40	58	49	42	37	39	34	30	30	26	24	21	19	17
6	60	48	40	35	53	44	37	32	35	30	26	27	23	21	19	17	15
7	55	43	36	30	49	39	33	28	32	27	23	24	21	18	18	15	14
8	51	39	32	27	46	36	29	24	29	24	20	22	19	16	16	14	12
9	47	36	28	24	43	32	26	22	26	21	18	20	17	14	15	13	11
10	44	33	26	21	40	30	23	19	24	19	16	19	15	13	14	12	10

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1157	1157	1157
5°	1159	1141	1149
10°	1150	1126	1133
15°	1133	1108	1109
20°	1110	1082	1084
25°	1088	1051	1056
30°	1059	1023	1019
35°	1032	989	980
40°	999	955	944
45°	966	921	906
50°	930	885	863
55°	892	844	823
60°	850	795	777
65°	803	744	723
70°	744	682	664
75°	662	608	611
80°	563	513	508
85°	409	349	338

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 1559 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	146.5	1.1
10°-20°	412.2	3.2
20°-30°	605.7	4.7
30°-40°	703.5	5.5
40°-50°	702.6	5.5
50°-60°	612.7	4.8
60°-70°	452.9	3.5
70°-80°	256.2	2.0
80°-90°	73.0	0.6
90°-100°	100.2	0.8
100°-110°	373.4	2.9
110°-120°	990.2	7.7
120°-130°	1642.4	12.8
130°-140°	1744.6	13.6
140°-150°	1621.4	12.6
150°-160°	1303.5	10.1
160°-170°	840.0	6.5
170°-180°	289.1	2.2
0°-30°	1164.4	9.0
0°-40°	1867.9	14.5
0°-60°	3183.2	24.7
0°-90°	3965.3	30.8
90°-120°	1463.7	11.4
90°-150°	6472.0	50.3
90°-180°	8905.0	69.2
0°-180°	12870.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1556	1556	1556	1556	1556	
5°	1556	1550	1534	1546	1543	148
15°	1482	1473	1453	1459	1452	417
25°	1341	1329	1304	1306	1304	617
35°	1157	1142	1118	1109	1102	722
45°	941	931	908	892	886	727
55°	712	703	686	668	660	637
65°	480	471	456	443	436	475
75°	251	248	241	232	235	268
85°	61	60	58	54	52	68
90°	2	26	44	55	59	12
95°	143	70	86	97	94	169
105°	668	734	134	158	167	714
115°	1264	1301	1356	338	180	1244
125°	1787	1815	1857	1873	1879	1594
135°	2211	2246	2266	2288	2284	1708
145°	2565	2563	2600	2615	2604	1604
155°	2824	2805	2831	2844	2826	1301
165°	2976	2963	2969	2985	2969	841
175°	3044	3028	3033	3048	3026	290
180°	3037	3037	3037	3037	3037	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1556.4	1556.4	1556.4	1556.4	1556.4
2.5°	1565.5	1558.0	1541.5	1556.4	1553.6
5°	1556.4	1550.5	1534.0	1545.9	1543.1
7.5°	1545.9	1537.0	1520.5	1532.6	1529.6
10°	1529.6	1519.1	1501.2	1513.1	1508.6
12.5°	1507.0	1498.1	1480.2	1487.7	1484.6
15°	1481.6	1472.7	1453.2	1459.2	1451.8
17.5°	1450.2	1441.3	1421.8	1429.2	1421.8
20°	1415.7	1406.8	1385.9	1390.3	1384.5
22.5°	1381.4	1367.9	1348.4	1348.4	1345.4
25°	1340.9	1329.0	1303.6	1306.5	1303.6
27.5°	1296.0	1285.5	1266.2	1261.7	1254.3
30°	1251.2	1239.2	1216.8	1212.3	1206.3
32.5°	1203.3	1194.4	1170.4	1161.4	1155.3
35°	1156.9	1142.0	1118.0	1109.0	1101.5
37.5°	1104.5	1091.0	1067.0	1056.6	1049.1
40°	1050.7	1038.6	1014.6	1001.3	995.3
42.5°	998.3	986.2	962.4	947.3	938.4
45°	941.4	931.0	908.4	892.1	886.0
47.5°	886.0	875.5	851.6	835.1	826.2
50°	827.6	820.1	799.2	778.2	770.7
52.5°	770.7	760.3	740.9	724.4	713.9
55°	712.5	703.4	685.5	667.5	660.1
57.5°	654.0	646.6	627.0	609.1	603.1
60°	595.6	589.7	568.8	552.3	547.8
62.5°	538.8	528.3	513.4	498.4	492.4
65°	480.5	471.4	456.5	443.0	435.6
67.5°	420.6	413.0	399.7	389.2	383.2
70°	365.2	359.2	345.7	335.2	329.3
72.5°	308.4	302.3	294.9	284.4	279.9
75°	251.4	248.5	240.9	232.0	235.0
77.5°	200.5	194.5	191.5	187.0	182.6
80°	149.7	148.1	145.1	140.7	137.7
82.5°	101.8	101.8	100.4	94.3	94.3
85°	61.3	59.9	58.4	53.8	52.4
87.5°	27.0	24.0	21.0	16.5	14.9
90°	2.1	26.4	43.8	55.1	59.2
92.5°	55.1	46.2	52.7	57.2	59.2
95°	142.8	70.2	85.6	96.8	94.5
97.5°	257.1	77.0	112.0	118.7	120.8
100°	389.1	88.0	125.3	142.8	147.2
102.5°	534.0	529.8	129.7	153.7	160.5
105°	668.1	734.2	134.1	158.2	167.0
107.5°	824.2	879.0	138.6	162.6	171.5
110°	973.7	1019.7	384.7	164.9	173.6

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1114.4	1153.8	1116.5	169.1	175.9
115°	1263.7	1301.0	1356.1	338.5	180.3
117.5°	1393.4	1437.3	1474.8	1160.4	584.6
120°	1538.5	1571.4	1611.1	1637.4	1340.7
122.5°	1661.5	1696.7	1740.8	1753.8	1756.2
125°	1786.7	1815.4	1857.2	1872.6	1879.1
127.5°	1901.0	1931.8	1965.0	1986.9	1989.0
130°	2008.8	2044.1	2068.1	2092.3	2090.3
132.5°	2118.7	2147.4	2171.4	2191.3	2189.2
135°	2211.1	2246.3	2265.9	2288.1	2283.7
137.5°	2307.7	2334.0	2356.2	2378.1	2371.6
140°	2402.1	2419.9	2443.9	2463.7	2452.8
142.5°	2481.5	2496.9	2525.3	2542.8	2531.9
145°	2565.0	2562.6	2600.0	2615.4	2604.4
147.5°	2637.3	2630.8	2668.1	2679.1	2670.4
150°	2707.8	2692.4	2727.6	2740.6	2729.7
152.5°	2767.0	2749.5	2782.4	2795.7	2780.3
155°	2824.2	2804.6	2830.9	2844.0	2826.5
157.5°	2870.4	2852.9	2872.7	2888.1	2870.4
160°	2910.0	2896.7	2910.0	2923.1	2907.7
162.5°	2945.0	2931.9	2942.9	2958.3	2938.5
165°	2975.8	2962.7	2969.3	2984.7	2969.3
167.5°	3000.1	2986.8	2993.5	3008.9	2989.1
170°	3019.9	3006.6	3011.0	3026.4	3006.6
172.5°	3033.0	3019.9	3024.3	3039.7	3019.9
175°	3043.9	3028.5	3033.0	3048.3	3026.4
177.5°	3048.3	3033.0	3035.3	3050.7	3030.9
180°	3037.4	3037.4	3037.4	3037.4	3037.4

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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	5.68	6.39	6.78	7.49	9.01	5.24	5.96	6.35	7.06	8.58
	3H	7.33	7.96	8.44	9.07	10.61	6.85	7.49	7.97	8.60	10.14
	4H	7.91	8.51	9.03	9.62	11.17	7.43	8.04	8.56	9.15	10.69
	6H	8.30	8.86	9.43	9.97	11.53	7.82	8.38	8.96	9.50	11.05
	8H	8.40	8.93	9.54	10.06	11.61	7.93	8.46	9.06	9.59	11.13
	12H	8.44	8.95	9.58	10.07	11.64	7.96	8.47	9.10	9.59	11.16
4H	2H	6.12	6.73	7.25	7.84	9.38	5.78	6.38	6.91	7.49	9.04
	3H	7.97	8.48	9.11	9.62	11.17	7.58	8.09	8.72	9.22	10.78
	4H	8.68	9.15	9.82	10.27	11.85	8.28	8.74	9.42	9.87	11.44
	6H	9.19	9.59	10.34	10.74	12.30	8.78	9.18	9.93	10.33	11.89
	8H	9.34	9.71	10.48	10.85	12.43	8.92	9.30	10.07	10.44	12.02
	12H	9.40	9.74	10.57	10.89	12.48	8.98	9.32	10.14	10.47	12.06
8H	4H	8.87	9.24	10.01	10.38	11.96	8.51	8.88	9.65	10.02	11.60
	6H	9.49	9.80	10.66	10.98	12.56	9.13	9.44	10.30	10.62	12.20
	8H	9.71	9.98	10.89	11.14	12.74	9.34	9.61	10.52	10.77	12.37
	12H	9.84	10.07	11.02	11.23	12.87	9.45	9.69	10.63	10.85	12.48
12H	4H	8.85	9.18	10.01	10.34	11.92	8.49	8.83	9.66	9.98	11.57
	6H	9.52	9.79	10.70	10.95	12.55	9.17	9.44	10.34	10.60	12.20
	8H	9.76	9.99	10.94	11.15	12.79	9.40	9.64	10.58	10.80	12.43

END OF REPORT