

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: P928388

Luminaire Tested: DFN2DIP-HX4F0-100D050US927-FLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P928388
REPORT IS A COMBINATION OF REPORTS P900849 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-100D050US927-FLLONL
Description: 4 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

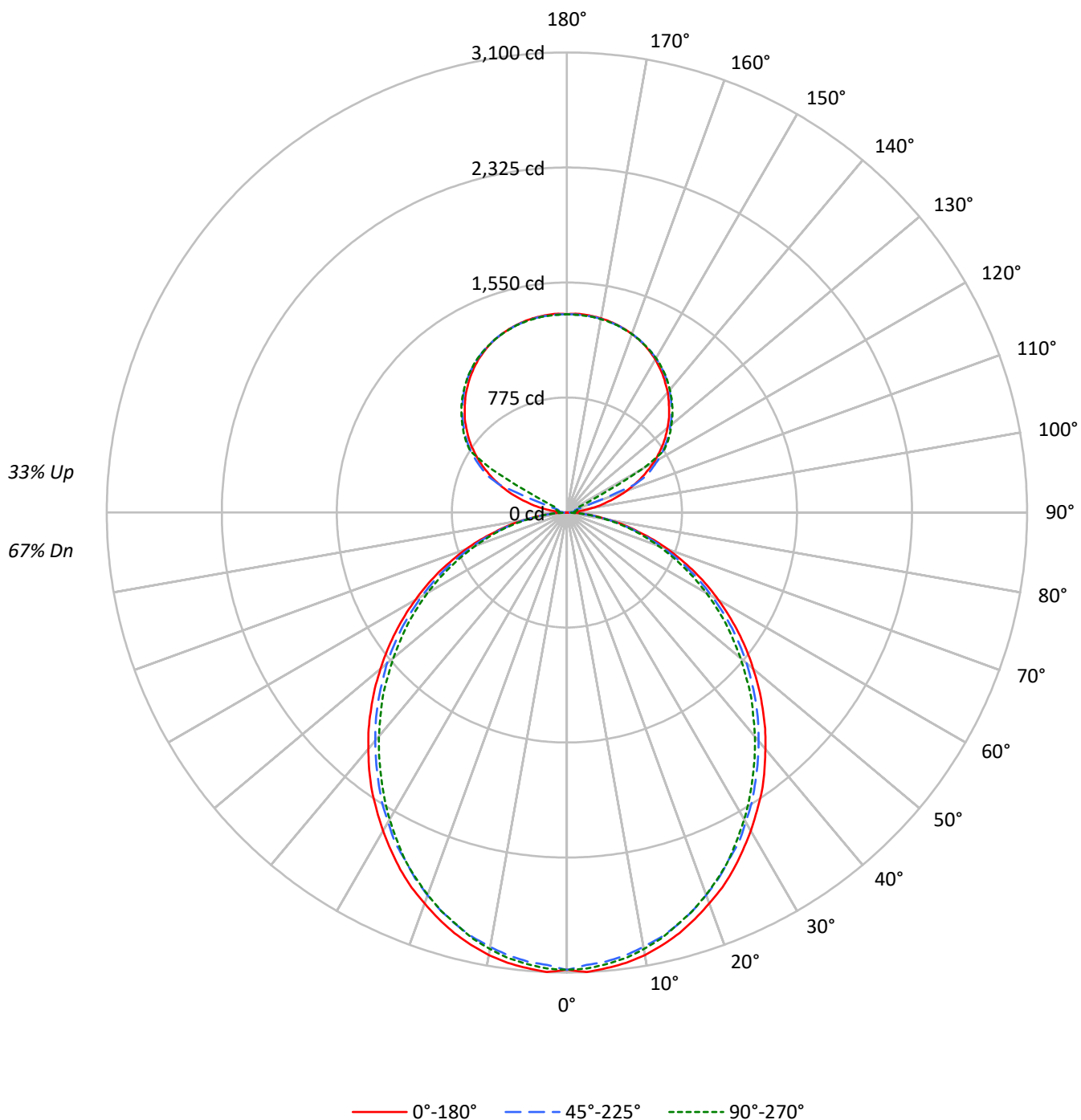
Lumens per Lamp: N/A
Luminaire Lumens: 11761.2 lumens
Efficiency: N/A
Efficacy: 85.8 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 137
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.946
Total Harmonic Distortion (THDi): 0.132
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	111	111	111	111	105	105	105	105	93	93	93	82	82	82	71	71	71
1	102	97	93	90	95	92	88	85	81	79	76	72	70	68	63	62	60
2	92	85	79	73	87	80	75	70	71	67	63	63	60	57	56	53	51
3	84	75	67	61	79	71	64	58	63	58	53	56	52	48	49	46	43
4	77	66	58	52	72	63	55	50	56	50	45	50	45	41	44	40	37
5	71	59	51	44	67	56	48	43	50	44	39	45	40	36	40	36	33
6	66	53	45	39	62	50	43	37	45	39	34	41	35	32	36	32	29
7	61	48	40	34	57	46	38	33	41	35	30	37	32	28	33	29	26
8	56	44	36	30	53	42	34	29	38	31	27	34	29	25	30	26	23
9	53	40	32	27	50	38	31	26	35	29	24	31	26	23	28	24	21
10	49	37	29	24	46	35	28	24	32	26	22	29	24	20	26	22	19

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2292	2292	2292
5°	2295	2260	2275
10°	2277	2230	2244
15°	2244	2193	2196
20°	2198	2142	2147
25°	2154	2082	2090
30°	2098	2025	2018
35°	2044	1958	1941
40°	1979	1891	1869
45°	1913	1823	1794
50°	1842	1753	1708
55°	1767	1671	1629
60°	1682	1573	1538
65°	1590	1473	1431
70°	1473	1350	1316
75°	1310	1203	1209
80°	1115	1016	1006
85°	809	692	669

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
Vertical Angle: 45°
Luminance: 1913 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	290.1	2.5
10°-20°	816.1	6.9
20°-30°	1199.3	10.2
30°-40°	1392.9	11.8
40°-50°	1391.2	11.8
50°-60°	1213.1	10.3
60°-70°	896.8	7.6
70°-80°	507.4	4.3
80°-90°	136.3	1.2
90°-100°	44.1	0.4
100°-110°	164.3	1.4
110°-120°	435.7	3.7
120°-130°	722.6	6.1
130°-140°	767.6	6.5
140°-150°	713.4	6.1
150°-160°	573.6	4.9
160°-170°	369.6	3.1
170°-180°	127.2	1.1
0°-30°	2305.5	19.6
0°-40°	3698.4	31.4
0°-60°	6302.7	53.6
0°-90°	7843.1	66.7
90°-120°	644.1	5.5
90°-150°	2847.7	24.2
90°-180°	3918.0	33.3
0°-180°	11761.2	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3082	3082	3082	3082	3082	
5°	3082	3070	3037	3061	3055	293
15°	2934	2916	2877	2889	2875	826
25°	2655	2632	2581	2587	2581	1222
35°	2291	2261	2214	2196	2181	1430
45°	1864	1843	1799	1766	1754	1439
55°	1411	1393	1357	1322	1307	1261
65°	951	934	904	877	862	941
75°	498	492	477	459	465	531
85°	121	119	116	107	104	135
90°	1	12	19	24	26	11
95°	63	31	38	43	42	74
105°	294	323	59	70	74	314
115°	556	572	597	149	79	547
125°	786	799	817	824	827	701
135°	973	988	997	1007	1005	752
145°	1129	1128	1144	1151	1146	706
155°	1243	1234	1246	1251	1244	573
165°	1309	1304	1306	1313	1306	370
175°	1339	1332	1334	1341	1332	127
180°	1336	1336	1336	1336	1336	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3081.8	3081.8	3081.8	3081.8	3081.8
2.5°	3099.7	3084.8	3052.1	3081.8	3076.0
5°	3081.8	3070.1	3037.4	3061.0	3055.3
7.5°	3061.0	3043.3	3010.6	3034.5	3028.6
10°	3028.6	3007.9	2972.3	2995.9	2987.1
12.5°	2983.9	2966.4	2930.8	2945.6	2939.6
15°	2933.6	2916.1	2877.3	2889.3	2874.6
17.5°	2871.4	2853.8	2815.1	2829.9	2815.1
20°	2803.1	2785.5	2744.0	2752.8	2741.2
22.5°	2735.3	2708.6	2669.8	2669.8	2663.9
25°	2655.1	2631.5	2581.2	2586.8	2581.2
27.5°	2566.1	2545.3	2507.0	2498.2	2483.4
30°	2477.5	2453.5	2409.2	2400.4	2388.4
32.5°	2382.5	2364.9	2317.4	2299.5	2287.5
35°	2290.7	2261.2	2213.6	2195.7	2180.9
37.5°	2186.9	2160.2	2112.7	2092.0	2077.2
40°	2080.3	2056.4	2009.0	1982.6	1970.7
42.5°	1976.6	1952.7	1905.6	1875.7	1858.1
45°	1864.1	1843.3	1798.6	1766.2	1754.4
47.5°	1754.4	1733.6	1686.1	1653.4	1635.8
50°	1638.6	1623.8	1582.3	1540.8	1526.1
52.5°	1526.1	1505.4	1466.9	1434.3	1413.6
55°	1410.7	1392.8	1357.3	1321.7	1307.0
57.5°	1295.0	1280.2	1241.5	1206.1	1194.1
60°	1179.3	1167.6	1126.1	1093.4	1084.6
62.5°	1066.7	1046.0	1016.5	986.9	975.0
65°	951.4	933.5	903.9	877.1	862.4
67.5°	832.9	817.7	791.4	770.6	758.7
70°	723.1	711.1	684.4	663.7	652.1
72.5°	610.6	598.6	583.9	563.1	554.2
75°	497.7	492.1	476.9	459.4	465.3
77.5°	397.1	385.1	379.1	370.3	361.5
80°	296.4	293.4	287.3	278.5	272.6
82.5°	201.6	201.6	198.7	186.8	186.8
85°	121.3	118.6	115.7	106.6	103.8
87.5°	53.5	47.4	41.5	32.7	29.5
90°	1.0	11.6	19.3	24.2	26.1
92.5°	24.2	20.4	23.2	25.2	26.1
95°	62.8	30.9	37.7	42.6	41.6
97.5°	113.1	33.9	49.3	52.3	53.1
100°	171.2	38.7	55.1	62.8	64.8
102.5°	235.0	233.1	57.1	67.6	70.6
105°	294.0	323.1	59.0	69.6	73.5
107.5°	362.7	386.7	61.0	71.5	75.5
110°	428.5	448.7	169.3	72.5	76.3

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	490.3	507.7	491.3	74.4	77.4
115°	556.1	572.5	596.7	149.0	79.4
117.5°	613.1	632.4	649.0	510.5	257.2
120°	676.9	691.4	708.8	720.5	589.9
122.5°	731.0	746.5	765.9	771.7	772.8
125°	786.1	798.8	817.2	823.9	826.8
127.5°	836.4	850.0	864.6	874.2	875.2
130°	883.9	899.4	909.9	920.6	919.7
132.5°	932.3	944.9	955.4	964.2	963.2
135°	972.9	988.4	997.0	1006.8	1004.8
137.5°	1015.3	1027.0	1036.7	1046.4	1043.5
140°	1056.9	1064.8	1075.3	1084.0	1079.3
142.5°	1091.9	1098.7	1111.2	1118.9	1114.0
145°	1128.6	1127.6	1144.0	1150.8	1145.9
147.5°	1160.4	1157.5	1174.0	1178.8	1175.0
150°	1191.4	1184.7	1200.1	1205.9	1201.1
152.5°	1217.5	1209.8	1224.3	1230.1	1223.3
155°	1242.6	1234.0	1245.6	1251.4	1243.7
157.5°	1262.9	1255.2	1264.0	1270.8	1262.9
160°	1280.4	1274.6	1280.4	1286.1	1279.4
162.5°	1295.8	1290.1	1294.8	1301.7	1292.9
165°	1309.3	1303.6	1306.5	1313.2	1306.5
167.5°	1320.0	1314.2	1317.2	1323.9	1315.2
170°	1328.7	1322.9	1324.9	1331.6	1322.9
172.5°	1334.5	1328.7	1330.7	1337.5	1328.7
175°	1339.4	1332.5	1334.5	1341.3	1331.6
177.5°	1341.3	1334.5	1335.5	1342.3	1333.6
180°	1336.4	1336.4	1336.4	1336.4	1336.4

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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	11.57	12.60	12.37	13.42	14.43	11.14	12.17	11.93	12.99	14.00
	3H	13.24	14.17	14.05	15.00	16.04	12.77	13.70	13.58	14.53	15.57
	4H	13.84	14.71	14.67	15.55	16.60	13.36	14.24	14.19	15.08	16.13
	6H	14.25	15.06	15.09	15.90	16.97	13.77	14.58	14.61	15.43	16.49
	8H	14.36	15.13	15.21	15.99	17.06	13.88	14.65	14.73	15.52	16.58
	12H	14.41	15.15	15.27	16.01	17.10	13.93	14.66	14.79	15.52	16.62
4H	2H	12.05	12.93	12.88	13.77	14.82	11.70	12.58	12.54	13.42	14.47
	3H	13.93	14.66	14.78	15.54	16.60	13.54	14.27	14.38	15.14	16.21
	4H	14.65	15.32	15.51	16.19	17.29	14.25	14.92	15.11	15.79	16.88
	6H	15.18	15.76	16.05	16.65	17.75	14.77	15.35	15.64	16.24	17.34
	8H	15.33	15.87	16.21	16.76	17.87	14.92	15.46	15.80	16.35	17.46
	12H	15.42	15.90	16.31	16.81	17.93	14.99	15.48	15.89	16.39	17.50
8H	4H	14.87	15.40	15.74	16.29	17.40	14.50	15.04	15.38	15.93	17.04
	6H	15.51	15.95	16.41	16.88	17.99	15.14	15.59	16.05	16.52	17.63
	8H	15.73	16.12	16.64	17.05	18.18	15.36	15.76	16.27	16.68	17.81
	12H	15.87	16.22	16.79	17.13	18.31	15.48	15.83	16.40	16.75	17.93
12H	4H	14.86	15.35	15.76	16.25	17.37	14.51	14.99	15.40	15.90	17.02
	6H	15.54	15.93	16.45	16.86	17.98	15.18	15.58	16.10	16.51	17.63
	8H	15.79	16.14	16.71	17.05	18.23	15.43	15.78	16.35	16.70	17.87