

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: P928348

Luminaire Tested: DFN2DIP-HX4F0-090D040US927-FLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P928348
REPORT IS A COMBINATION OF REPORTS P900829 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-090D040US927-FLLONL
Description: 4 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

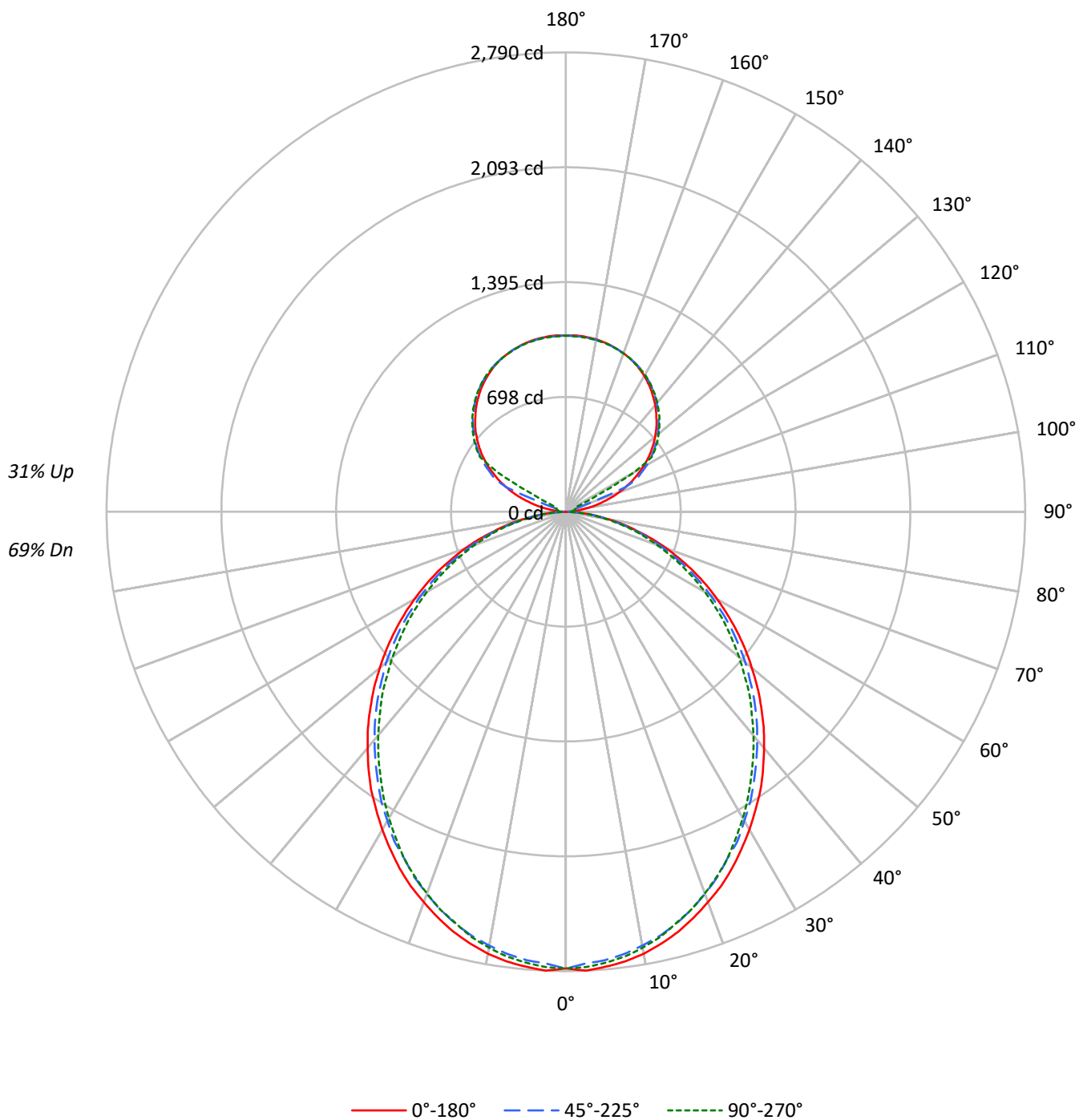
Lumens per Lamp: N/A
Luminaire Lumens: 10193.0 lumens
Efficiency: N/A
Efficacy: 85.8 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 118.8
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9821
Total Harmonic Distortion (THDi): 0.08
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	112	112	112	112	106	106	106	106	94	94	94	83	83	83	74	74	74
1	102	98	94	90	96	92	89	86	83	80	77	74	72	70	65	64	62
2	93	85	79	74	88	81	75	70	72	68	64	65	61	58	57	55	53
3	85	75	67	61	80	71	64	59	64	59	54	57	53	49	51	48	45
4	78	67	58	52	73	63	56	50	57	51	46	51	46	42	46	42	39
5	71	59	51	45	67	57	49	43	51	45	40	46	41	37	41	37	34
6	66	53	45	39	62	51	43	38	46	40	35	42	36	32	37	33	30
7	61	48	40	34	58	46	39	33	42	36	31	38	33	29	34	30	26
8	57	44	36	31	54	42	35	30	38	32	28	35	29	26	31	27	24
9	53	40	33	27	50	39	31	27	35	29	25	32	27	23	29	25	21
10	50	37	30	25	47	36	29	24	32	27	22	30	25	21	27	23	20

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2062	2062	2062
5°	2066	2034	2047
10°	2049	2007	2020
15°	2019	1974	1977
20°	1979	1928	1932
25°	1938	1873	1881
30°	1888	1822	1816
35°	1840	1762	1747
40°	1781	1702	1682
45°	1722	1641	1615
50°	1658	1577	1537
55°	1590	1503	1466
60°	1514	1416	1384
65°	1431	1325	1288
70°	1326	1215	1184
75°	1179	1083	1088
80°	1003	914	906
85°	728	623	602

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 1722 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	261.0	2.6
10°-20°	734.5	7.2
20°-30°	1079.4	10.6
30°-40°	1253.7	12.3
40°-50°	1252.1	12.3
50°-60°	1091.8	10.7
60°-70°	807.1	7.9
70°-80°	456.6	4.5
80°-90°	122.4	1.2
90°-100°	35.2	0.3
100°-110°	131.4	1.3
110°-120°	348.6	3.4
120°-130°	578.1	5.7
130°-140°	614.1	6.0
140°-150°	570.7	5.6
150°-160°	458.8	4.5
160°-170°	295.7	2.9
170°-180°	101.8	1.0
0°-30°	2074.9	20.4
0°-40°	3328.6	32.7
0°-60°	5672.5	55.7
0°-90°	7058.6	69.2
90°-120°	515.2	5.1
90°-150°	2278.1	22.3
90°-180°	3134.0	30.7
0°-180°	10193.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2774	2774	2774	2774	2774	
5°	2774	2763	2734	2755	2750	263
15°	2640	2624	2590	2600	2587	744
25°	2390	2368	2323	2328	2323	1100
35°	2062	2035	1992	1976	1963	1287
45°	1678	1659	1619	1590	1579	1295
55°	1270	1254	1222	1190	1176	1135
65°	856	840	814	790	776	847
75°	448	443	429	413	419	478
85°	109	107	104	96	93	122
90°	1	9	15	19	21	9
95°	50	25	30	34	33	59
105°	235	258	47	56	59	251
115°	445	458	477	119	64	438
125°	629	639	654	659	662	561
135°	778	791	798	805	804	601
145°	903	902	915	921	917	565
155°	994	987	996	1001	995	458
165°	1048	1043	1045	1051	1045	296
175°	1071	1066	1068	1073	1065	102
180°	1069	1069	1069	1069	1069	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2773.5	2773.5	2773.5	2773.5	2773.5
2.5°	2789.7	2776.4	2747.0	2773.5	2768.4
5°	2773.5	2763.1	2733.7	2754.9	2749.7
7.5°	2754.9	2739.1	2709.6	2731.1	2725.7
10°	2725.7	2707.1	2675.1	2696.3	2688.4
12.5°	2685.5	2669.7	2637.8	2651.0	2645.7
15°	2640.3	2624.5	2589.6	2600.4	2587.1
17.5°	2584.2	2568.4	2533.6	2546.9	2533.6
20°	2522.8	2507.0	2469.6	2477.5	2467.1
22.5°	2461.7	2437.7	2402.8	2402.8	2397.5
25°	2389.5	2368.3	2323.1	2328.2	2323.1
27.5°	2309.5	2290.8	2256.3	2248.4	2235.1
30°	2229.7	2208.2	2168.3	2160.3	2149.6
32.5°	2144.3	2128.4	2085.7	2069.6	2058.8
35°	2061.7	2035.0	1992.3	1976.2	1962.9
37.5°	1968.3	1944.2	1901.4	1882.8	1869.5
40°	1872.3	1850.8	1808.1	1784.3	1773.6
42.5°	1778.9	1757.4	1715.0	1688.1	1672.3
45°	1677.6	1659.0	1618.8	1589.6	1578.9
47.5°	1578.9	1560.2	1517.5	1488.1	1472.2
50°	1474.8	1461.5	1424.1	1386.8	1373.5
52.5°	1373.5	1354.8	1320.3	1290.9	1272.2
55°	1269.7	1253.5	1221.5	1189.6	1176.3
57.5°	1165.5	1152.2	1117.4	1085.4	1074.7
60°	1061.4	1050.9	1013.5	984.1	976.2
62.5°	960.1	941.4	914.8	888.2	877.5
65°	856.2	840.1	813.5	789.5	776.2
67.5°	749.5	736.0	712.2	693.6	682.8
70°	650.8	640.0	616.0	597.3	586.9
72.5°	549.5	538.7	525.4	506.8	498.9
75°	448.0	442.8	429.3	413.4	418.8
77.5°	357.4	346.7	341.3	333.4	325.4
80°	266.8	264.0	258.6	250.7	245.4
82.5°	181.4	181.4	178.8	168.1	168.1
85°	109.2	106.7	104.1	95.9	93.4
87.5°	48.1	42.7	37.4	29.5	26.6
90°	0.7	9.3	15.4	19.4	20.8
92.5°	19.4	16.2	18.5	20.1	20.8
95°	50.2	24.7	30.1	34.1	33.3
97.5°	90.5	27.1	39.4	41.8	42.5
100°	136.9	31.0	44.1	50.2	51.8
102.5°	187.9	186.5	45.6	54.1	56.5
105°	235.1	258.4	47.2	55.7	58.8
107.5°	290.1	309.4	48.8	57.3	60.4
110°	342.8	358.9	135.4	58.1	61.1



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	392.3	406.1	393.0	59.6	61.9
115°	444.8	457.9	477.3	119.1	63.5
117.5°	490.5	505.9	519.2	408.4	205.8
120°	541.6	553.1	567.1	576.4	472.0
122.5°	584.8	597.2	612.8	617.4	618.2
125°	628.9	639.1	653.7	659.2	661.5
127.5°	669.2	680.0	691.7	699.4	700.1
130°	707.1	719.5	727.9	736.5	735.8
132.5°	745.7	755.9	764.4	771.3	770.6
135°	778.3	790.7	797.6	805.4	803.9
137.5°	812.3	821.5	829.4	837.1	834.8
140°	845.5	851.8	860.3	867.2	863.4
142.5°	873.5	878.9	888.9	895.0	891.2
145°	902.9	902.1	915.2	920.6	916.7
147.5°	928.3	926.0	939.2	943.0	940.0
150°	953.1	947.7	960.1	964.7	960.9
152.5°	974.0	967.8	979.4	984.1	978.7
155°	994.1	987.2	996.5	1001.1	994.9
157.5°	1010.4	1004.2	1011.2	1016.6	1010.4
160°	1024.3	1019.6	1024.3	1028.9	1023.5
162.5°	1036.6	1032.1	1035.9	1041.3	1034.4
165°	1047.5	1042.9	1045.2	1050.6	1045.2
167.5°	1056.1	1051.3	1053.8	1059.1	1052.2
170°	1063.0	1058.3	1059.9	1065.3	1058.3
172.5°	1067.6	1063.0	1064.6	1070.0	1063.0
175°	1071.4	1066.0	1067.6	1073.0	1065.3
177.5°	1073.0	1067.6	1068.4	1073.9	1066.9
180°	1069.2	1069.2	1069.2	1069.2	1069.2

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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	11.40	12.46	12.17	13.26	14.23	10.97	12.03	11.74	12.83	13.79
	3H	13.08	14.03	13.86	14.84	15.83	12.60	13.56	13.39	14.36	15.36
	4H	13.67	14.58	14.48	15.39	16.40	13.20	14.10	14.00	14.92	15.92
	6H	14.08	14.92	14.90	15.74	16.76	13.61	14.44	14.42	15.26	16.29
	8H	14.20	14.99	15.02	15.83	16.85	13.72	14.51	14.54	15.35	16.38
	12H	14.25	15.01	15.08	15.84	16.89	13.77	14.53	14.60	15.36	16.41
4H	2H	11.89	12.79	12.69	13.60	14.61	11.54	12.44	12.35	13.26	14.27
	3H	13.77	14.53	14.59	15.37	16.40	13.38	14.13	14.20	14.98	16.00
	4H	14.49	15.18	15.33	16.03	17.08	14.09	14.78	14.92	15.62	16.67
	6H	15.02	15.62	15.87	16.49	17.54	14.61	15.21	15.46	16.08	17.13
	8H	15.18	15.73	16.03	16.60	17.67	14.77	15.32	15.62	16.19	17.25
	12H	15.26	15.76	16.13	16.65	17.72	14.84	15.34	15.71	16.22	17.30
8H	4H	14.71	15.26	15.56	16.13	17.20	14.35	14.90	15.20	15.77	16.84
	6H	15.35	15.81	16.23	16.72	17.79	14.99	15.45	15.87	16.35	17.42
	8H	15.57	15.98	16.46	16.88	17.97	15.20	15.61	16.10	16.51	17.60
	12H	15.71	16.08	16.61	16.97	18.11	15.33	15.69	16.22	16.58	17.72
12H	4H	14.70	15.20	15.58	16.09	17.16	14.35	14.85	15.22	15.74	16.81
	6H	15.38	15.79	16.27	16.69	17.78	15.03	15.44	15.92	16.34	17.43
	8H	15.63	15.99	16.53	16.89	18.03	15.28	15.64	16.17	16.53	17.67