

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: P929086

Luminaire Tested: DFN2DIP-HX4F0-110D080US935-RLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P929086
REPORT IS A COMBINATION OF REPORTS P900906 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-110D080US935-RLLONL
Description: 4 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

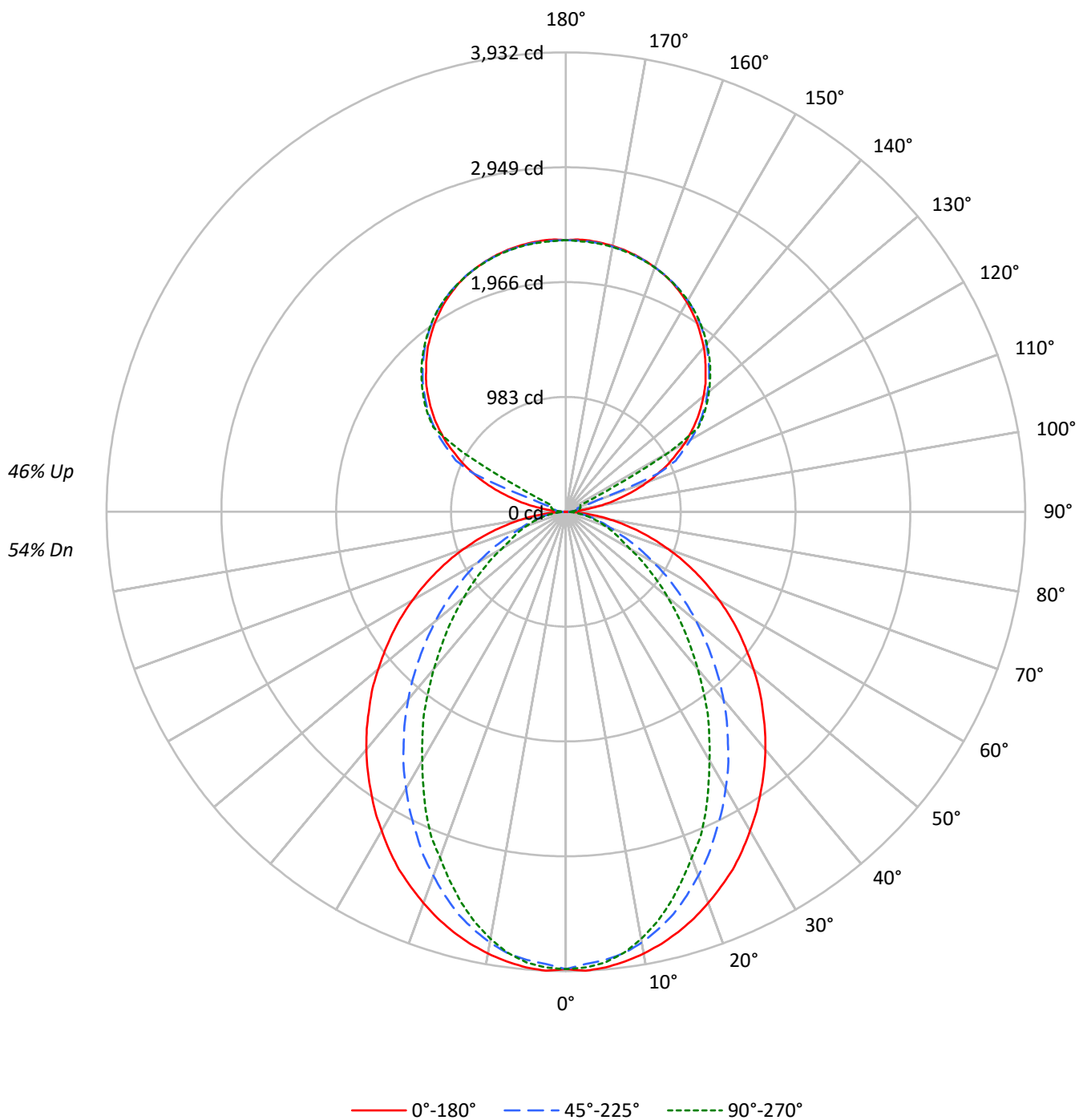
Lumens per Lamp: N/A
Luminaire Lumens: 14869.5 lumens
Efficiency: N/A
Efficacy: 87.2 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 170.6
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9967
Total Harmonic Distortion (THDi): 0.063
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	108	108	108	108	100	100	100	100	86	86	86	72	72	72	60	60	60
1	99	95	91	88	92	88	85	82	76	74	71	64	63	61	54	53	52
2	91	84	78	73	84	78	73	68	67	63	60	57	54	52	48	46	44
3	83	74	67	61	77	69	63	58	60	55	51	51	48	45	43	40	38
4	76	66	58	52	71	62	55	49	53	48	44	46	42	39	39	36	33
5	70	59	51	45	65	55	48	43	48	43	38	41	37	34	35	32	30
6	65	53	45	40	60	50	43	38	44	38	34	38	33	30	32	29	26
7	60	48	40	35	56	45	38	33	40	34	30	34	30	27	29	26	24
8	56	44	36	31	52	41	34	30	36	31	27	32	27	24	27	24	21
9	52	40	33	28	49	38	31	27	33	28	24	29	25	22	25	22	19
10	49	37	30	25	45	35	28	24	31	26	22	27	23	20	23	20	18

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2911	2911	2911
5°	2915	2865	2883
10°	2887	2809	2789
15°	2847	2716	2644
20°	2795	2588	2466
25°	2741	2445	2295
30°	2669	2298	2077
35°	2599	2141	1885
40°	2527	1977	1666
45°	2444	1796	1467
50°	2357	1613	1273
55°	2267	1417	1086
60°	2163	1212	894
65°	2043	1004	805
70°	1898	810	729
75°	1716	715	663
80°	1452	601	576
85°	1015	402	433

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2444 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	366.9	2.5
10°-20°	1007.1	6.8
20°-30°	1413.9	9.5
30°-40°	1541.3	10.4
40°-50°	1416.6	9.5
50°-60°	1112.5	7.5
60°-70°	724.2	4.9
70°-80°	372.8	2.5
80°-90°	99.2	0.7
90°-100°	76.7	0.5
100°-110°	285.7	1.9
110°-120°	757.9	5.1
120°-130°	1256.9	8.5
130°-140°	1335.2	9.0
140°-150°	1240.9	8.3
150°-160°	997.6	6.7
160°-170°	642.8	4.3
170°-180°	221.3	1.5
0°-30°	2787.9	18.7
0°-40°	4329.2	29.1
0°-60°	6858.3	46.1
0°-90°	8054.5	54.2
90°-120°	1120.2	7.5
90°-150°	4953.3	33.3
90°-180°	6815.0	45.8
0°-180°	14869.5	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3914	3914	3914	3914	3914	
5°	3914	3897	3850	3882	3872	371
15°	3723	3684	3564	3496	3461	1049
25°	3380	3266	3032	2887	2834	1554
35°	2912	2731	2420	2196	2118	1823
45°	2381	2143	1771	1520	1435	1838
55°	1810	1534	1151	939	872	1617
65°	1222	935	616	496	485	1212
75°	652	404	283	259	255	689
85°	152	78	67	67	67	175
90°	2	20	34	42	45	14
95°	109	54	66	74	72	129
105°	511	562	103	121	128	546
115°	967	996	1038	259	138	952
125°	1367	1389	1421	1433	1438	1220
135°	1692	1719	1734	1751	1748	1307
145°	1963	1961	1990	2002	1993	1228
155°	2162	2146	2167	2177	2163	996
165°	2278	2268	2272	2284	2272	643
175°	2330	2318	2321	2333	2316	222
180°	2325	2325	2325	2325	2325	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3914.4	3914.4	3914.4	3914.4	3914.4
2.5°	3932.0	3914.4	3875.3	3911.0	3903.9
5°	3914.4	3896.7	3850.5	3882.4	3871.9
7.5°	3882.4	3861.3	3811.7	3825.7	3807.9
10°	3840.0	3815.1	3744.5	3733.6	3712.5
12.5°	3786.9	3755.0	3659.2	3638.1	3599.0
15°	3723.1	3684.0	3563.7	3496.4	3461.0
17.5°	3648.7	3591.9	3443.1	3365.2	3308.5
20°	3563.7	3492.6	3315.6	3227.3	3149.1
22.5°	3471.6	3390.0	3184.5	3064.2	3011.2
25°	3379.5	3266.0	3032.3	2887.2	2833.8
27.5°	3269.8	3149.1	2890.5	2724.0	2642.5
30°	3152.9	3018.0	2734.6	2554.2	2458.3
32.5°	3039.4	2876.3	2586.1	2373.4	2284.7
35°	2912.0	2731.2	2419.7	2196.4	2118.2
37.5°	2788.0	2592.9	2263.7	2019.0	1930.7
40°	2656.8	2444.5	2100.6	1849.1	1757.0
42.5°	2522.2	2295.6	1937.9	1675.5	1587.2
45°	2380.6	2143.0	1771.3	1519.5	1434.6
47.5°	2246.0	1994.6	1612.0	1360.1	1282.4
50°	2097.1	1845.7	1456.0	1211.3	1137.3
52.5°	1951.7	1686.0	1307.2	1073.4	1006.1
55°	1810.0	1533.8	1151.2	938.8	871.6
57.5°	1665.0	1381.6	1013.2	814.9	758.0
60°	1516.1	1232.8	867.8	687.4	630.7
62.5°	1371.1	1087.7	743.8	573.9	545.7
65°	1222.2	935.0	616.4	496.1	485.2
67.5°	1080.6	793.4	496.1	435.6	425.1
70°	931.7	655.5	410.8	375.5	361.2
72.5°	790.0	527.7	343.5	315.3	308.2
75°	651.7	403.6	283.4	258.6	255.2
77.5°	513.8	286.8	223.3	209.0	201.8
80°	386.0	205.6	169.9	156.0	156.0
82.5°	269.1	138.3	116.9	109.8	109.8
85°	152.2	77.8	67.2	67.2	67.2
87.5°	56.7	28.2	28.2	24.8	24.8
90°	1.6	20.1	33.6	42.1	45.4
92.5°	42.1	35.4	40.4	43.7	45.4
95°	109.3	53.7	65.5	74.1	72.3
97.5°	196.7	58.9	85.7	90.9	92.5
100°	297.8	67.3	95.9	109.3	112.6
102.5°	408.7	405.4	99.3	117.6	122.9
105°	511.3	561.9	102.6	121.1	127.9
107.5°	630.8	672.7	106.1	124.4	131.2
110°	745.3	780.4	294.5	126.2	132.9

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	852.9	883.0	854.5	129.4	134.7
115°	967.2	995.7	1037.8	259.1	138.0
117.5°	1066.4	1100.0	1128.8	888.0	447.5
120°	1177.5	1202.6	1233.0	1253.2	1026.1
122.5°	1271.5	1298.6	1332.3	1342.3	1344.1
125°	1367.4	1389.4	1421.3	1433.1	1438.1
127.5°	1454.9	1478.5	1503.9	1520.6	1522.2
130°	1537.4	1564.4	1582.8	1601.4	1599.7
132.5°	1621.5	1643.5	1661.9	1677.1	1675.4
135°	1692.2	1719.2	1734.1	1751.2	1747.7
137.5°	1766.2	1786.3	1803.3	1820.1	1815.1
140°	1838.4	1852.0	1870.4	1885.6	1877.2
142.5°	1899.2	1910.9	1932.7	1946.1	1937.7
145°	1963.1	1961.3	1989.9	2001.7	1993.2
147.5°	2018.4	2013.4	2041.9	2050.4	2043.8
150°	2072.3	2060.5	2087.5	2097.5	2089.1
152.5°	2117.7	2104.3	2129.4	2139.7	2127.9
155°	2161.5	2146.5	2166.6	2176.6	2163.3
157.5°	2196.8	2183.4	2198.6	2210.4	2196.8
160°	2227.1	2217.0	2227.1	2237.1	2225.3
162.5°	2253.9	2243.9	2252.3	2264.1	2248.9
165°	2277.5	2267.5	2272.5	2284.2	2272.5
167.5°	2296.0	2285.9	2291.0	2302.8	2287.7
170°	2311.3	2301.0	2304.5	2316.3	2301.0
172.5°	2321.3	2311.3	2314.6	2326.4	2311.3
175°	2329.6	2317.8	2321.3	2333.0	2316.3
177.5°	2333.0	2321.3	2323.0	2334.8	2319.6
180°	2324.6	2324.6	2324.6	2324.6	2324.6

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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	11.24	12.11	12.17	13.05	14.26	7.21	8.08	8.14	9.02	10.23
	3H	12.92	13.70	13.86	14.65	15.88	8.41	9.18	9.35	10.13	11.37
	4H	13.53	14.26	14.49	15.22	16.46	8.86	9.59	9.81	10.55	11.79
	6H	13.96	14.63	14.92	15.59	16.85	9.19	9.86	10.15	10.82	12.08
	8H	14.09	14.73	15.06	15.70	16.96	9.28	9.92	10.25	10.89	12.15
	12H	14.15	14.76	15.12	15.73	17.01	9.32	9.93	10.30	10.90	12.18
4H	2H	11.26	11.99	12.22	12.95	14.20	7.81	8.55	8.77	9.50	10.75
	3H	13.10	13.71	14.07	14.69	15.95	9.17	9.78	10.14	10.76	12.02
	4H	13.79	14.35	14.77	15.32	16.61	9.72	10.28	10.70	11.25	12.54
	6H	14.31	14.79	15.30	15.79	17.07	10.14	10.62	11.13	11.62	12.91
	8H	14.49	14.93	15.48	15.93	17.22	10.27	10.72	11.27	11.71	13.01
	12H	14.58	14.98	15.59	16.00	17.30	10.34	10.74	11.35	11.75	13.06
8H	4H	13.76	14.21	14.75	15.20	16.50	10.00	10.45	11.00	11.44	12.74
	6H	14.33	14.70	15.35	15.74	17.03	10.53	10.89	11.54	11.93	13.23
	8H	14.55	14.87	15.57	15.90	17.21	10.72	11.04	11.74	12.07	13.38
	12H	14.69	14.97	15.72	15.99	17.35	10.84	11.13	11.87	12.14	13.50
12H	4H	13.72	14.12	14.73	15.13	16.43	10.01	10.41	11.02	11.42	12.73
	6H	14.31	14.63	15.33	15.66	16.97	10.58	10.90	11.60	11.92	13.24
	8H	14.53	14.82	15.56	15.83	17.19	10.79	11.07	11.82	12.09	13.45