

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: P928382

Luminaire Tested: DFN2DIP-HX4F0-090D120US927-RLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P928382
REPORT IS A COMBINATION OF REPORTS P900974 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-090D120US927-RLLONL
Description: 4 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

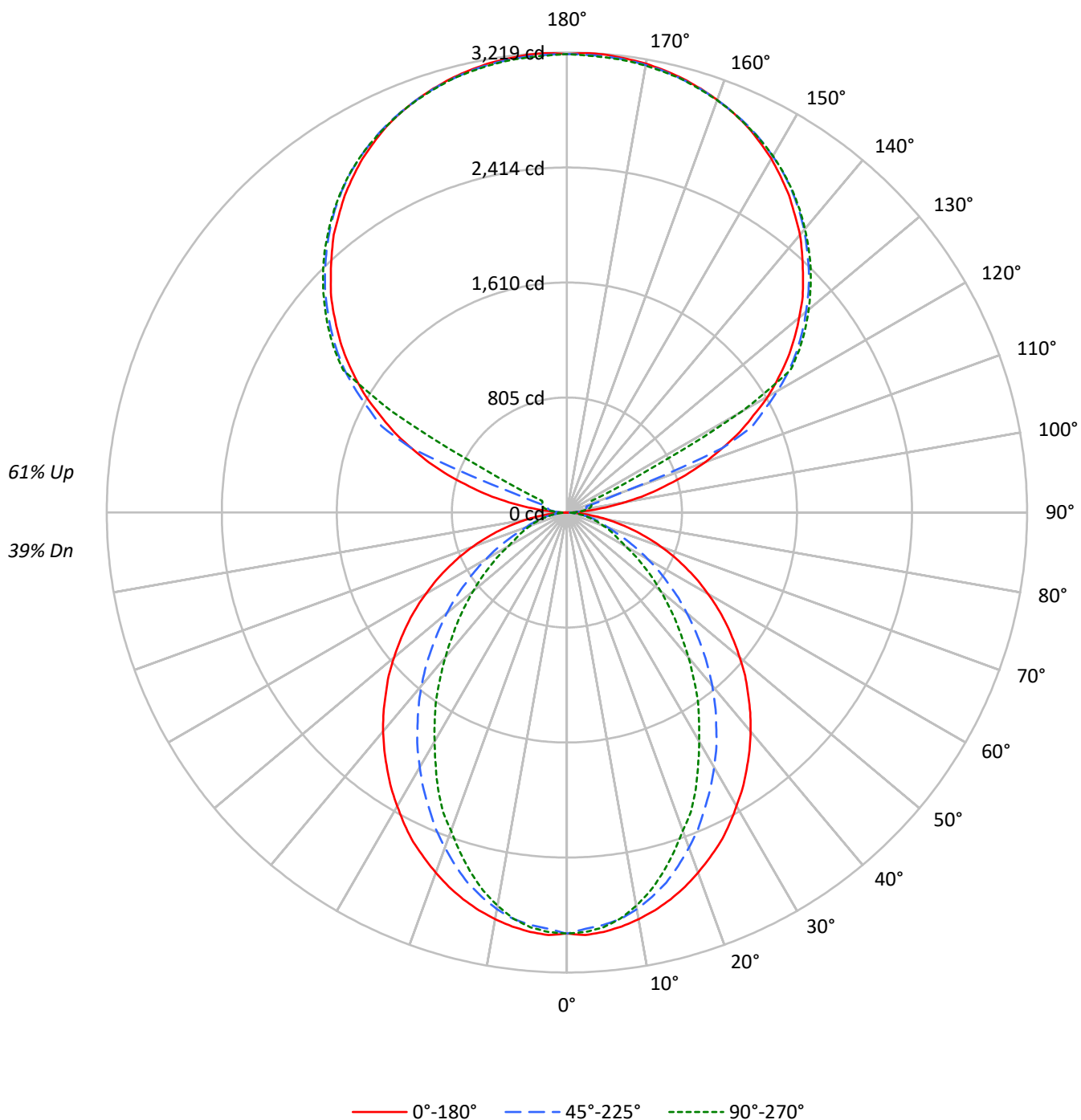
Lumens per Lamp: N/A
Luminaire Lumens: 15467.7 lumens
Efficiency: N/A
Efficacy: 83.8 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 184.6
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	105	105	105	105	95	95	95	95	77	77	77	61	61	61	46	46	46
1	96	92	88	85	87	83	80	78	68	66	64	54	53	52	41	41	40
2	87	80	75	70	79	73	68	64	60	57	54	48	46	44	37	35	34
3	80	71	64	58	73	65	59	54	53	49	46	43	40	37	33	31	29
4	73	63	55	50	67	58	51	46	48	43	39	38	35	32	30	27	26
5	67	56	48	43	61	52	45	40	43	38	34	35	31	28	27	25	23
6	62	51	43	37	56	46	40	35	39	34	30	31	28	25	25	22	20
7	57	46	38	33	52	42	35	31	35	30	26	29	25	22	23	20	18
8	53	42	34	29	49	38	32	27	32	27	23	26	22	20	21	18	16
9	50	38	31	26	45	35	29	24	29	24	21	24	20	18	19	17	15
10	46	35	28	23	42	32	26	22	27	22	19	22	19	16	18	15	13

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2191	2191	2191
5°	2194	2156	2170
10°	2173	2114	2099
15°	2143	2044	1990
20°	2104	1948	1856
25°	2063	1840	1727
30°	2009	1730	1563
35°	1956	1611	1419
40°	1902	1488	1254
45°	1839	1351	1104
50°	1774	1214	958
55°	1706	1066	817
60°	1628	912	673
65°	1538	756	606
70°	1428	610	548
75°	1291	538	499
80°	1092	452	433
85°	763	303	326

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 1839 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	276.1	1.8
10°-20°	758.0	4.9
20°-30°	1064.1	6.9
30°-40°	1160.0	7.5
40°-50°	1066.2	6.9
50°-60°	837.3	5.4
60°-70°	545.0	3.5
70°-80°	280.5	1.8
80°-90°	77.3	0.5
90°-100°	105.8	0.7
100°-110°	394.3	2.5
110°-120°	1045.7	6.8
120°-130°	1734.3	11.2
130°-140°	1842.3	11.9
140°-150°	1712.2	11.1
150°-160°	1376.5	8.9
160°-170°	887.0	5.7
170°-180°	305.3	2.0
0°-30°	2098.2	13.6
0°-40°	3258.2	21.1
0°-60°	5161.6	33.4
0°-90°	6064.4	39.2
90°-120°	1545.7	10.0
90°-150°	6834.5	44.2
90°-180°	9403.0	60.8
0°-180°	15467.7	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2946	2946	2946	2946	2946	
5°	2946	2933	2898	2922	2914	279
15°	2802	2773	2682	2631	2605	790
25°	2544	2458	2282	2173	2133	1170
35°	2192	2056	1821	1653	1594	1372
45°	1792	1613	1333	1144	1080	1384
55°	1362	1154	866	707	656	1217
65°	920	704	464	373	365	912
75°	490	304	213	195	192	519
85°	114	58	51	51	51	131
90°	2	28	46	58	63	14
95°	151	74	90	102	100	179
105°	706	775	142	167	176	754
115°	1334	1374	1432	357	190	1314
125°	1887	1917	1961	1978	1984	1683
135°	2335	2372	2393	2416	2412	1804
145°	2709	2706	2746	2762	2750	1694
155°	2982	2962	2990	3003	2985	1374
165°	3142	3129	3136	3152	3136	888
175°	3214	3198	3203	3219	3196	306
180°	3208	3208	3208	3208	3208	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2946.0	2946.0	2946.0	2946.0	2946.0
2.5°	2959.3	2946.0	2916.5	2943.5	2938.1
5°	2946.0	2932.7	2897.9	2921.9	2914.0
7.5°	2921.9	2906.1	2868.8	2879.2	2865.9
10°	2890.0	2871.3	2818.2	2809.9	2794.1
12.5°	2850.1	2826.1	2753.9	2738.1	2708.6
15°	2802.0	2772.6	2682.1	2631.4	2604.9
17.5°	2746.0	2703.3	2591.3	2532.7	2490.0
20°	2682.1	2628.6	2495.4	2428.9	2370.1
22.5°	2612.8	2551.4	2396.7	2306.1	2266.3
25°	2543.5	2458.1	2282.1	2172.9	2132.8
27.5°	2460.9	2370.1	2175.5	2050.2	1988.8
30°	2372.9	2271.4	2058.1	1922.3	1850.2
32.5°	2287.5	2164.7	1946.3	1786.3	1719.5
35°	2191.6	2055.6	1821.0	1653.1	1594.2
37.5°	2098.2	1951.5	1703.7	1519.5	1453.1
40°	1999.6	1839.7	1580.9	1391.7	1322.4
42.5°	1898.3	1727.7	1458.4	1261.0	1194.5
45°	1791.7	1612.9	1333.1	1143.6	1079.7
47.5°	1690.4	1501.2	1213.2	1023.7	965.1
50°	1578.4	1389.1	1095.8	911.7	855.9
52.5°	1468.9	1268.9	983.8	807.8	757.2
55°	1362.2	1154.3	866.4	706.6	655.9
57.5°	1253.1	1039.8	762.6	613.2	570.6
60°	1141.0	927.7	653.2	517.3	474.6
62.5°	1031.9	818.6	559.8	432.0	410.7
65°	919.8	703.8	463.9	373.3	365.2
67.5°	813.2	597.1	373.3	327.8	319.9
70°	701.2	493.3	309.2	282.6	271.8
72.5°	594.6	397.1	258.5	237.3	232.0
75°	490.5	303.8	213.3	194.6	192.1
77.5°	386.7	215.8	168.0	157.3	151.9
80°	290.5	154.8	127.8	117.4	117.4
82.5°	202.5	104.1	88.0	82.6	82.6
85°	114.5	58.5	50.6	50.6	50.6
87.5°	42.7	21.2	21.2	18.7	18.7
90°	2.2	27.8	46.3	58.1	62.6
92.5°	58.1	48.8	55.7	60.4	62.6
95°	150.7	74.1	90.4	102.2	99.8
97.5°	271.5	81.3	118.2	125.4	127.6
100°	410.9	92.9	132.3	150.7	155.5
102.5°	563.9	559.5	136.9	162.4	169.5
105°	705.5	775.3	141.7	167.0	176.4
107.5°	870.3	928.2	146.4	171.7	181.1
110°	1028.3	1076.8	406.2	174.2	183.3

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1176.8	1218.4	1179.1	178.6	185.7
115°	1334.4	1373.9	1432.0	357.4	190.5
117.5°	1471.5	1517.8	1557.5	1225.3	617.4
120°	1624.7	1659.4	1701.3	1729.2	1415.8
122.5°	1754.5	1791.7	1838.3	1852.1	1854.5
125°	1886.8	1917.1	1961.2	1977.5	1984.4
127.5°	2007.5	2040.0	2075.0	2098.2	2100.4
130°	2121.3	2158.5	2183.9	2209.5	2207.3
132.5°	2237.3	2267.7	2293.0	2314.0	2311.8
135°	2334.9	2372.1	2392.8	2416.2	2411.6
137.5°	2436.9	2464.7	2488.1	2511.3	2504.4
140°	2536.7	2555.4	2580.7	2601.7	2590.2
142.5°	2620.4	2636.7	2666.7	2685.2	2673.6
145°	2708.6	2706.2	2745.5	2761.9	2750.2
147.5°	2785.0	2778.1	2817.5	2829.1	2820.0
150°	2859.4	2843.1	2880.3	2894.1	2882.6
152.5°	2921.9	2903.5	2938.2	2952.3	2936.0
155°	2982.3	2961.6	2989.5	3003.3	2984.8
157.5°	3031.1	3012.6	3033.6	3049.8	3031.1
160°	3073.0	3058.9	3073.0	3086.7	3070.5
162.5°	3109.9	3096.2	3107.7	3124.0	3103.1
165°	3142.4	3128.6	3135.5	3151.8	3135.5
167.5°	3168.1	3154.0	3161.2	3177.4	3156.5
170°	3189.0	3175.0	3179.6	3195.9	3175.0
172.5°	3202.8	3189.0	3193.7	3210.0	3189.0
175°	3214.3	3198.1	3202.8	3219.1	3195.9
177.5°	3219.1	3202.8	3205.3	3221.5	3200.6
180°	3207.5	3207.5	3207.5	3207.5	3207.5

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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	8.77	9.52	9.82	10.57	11.99	4.75	5.50	5.80	6.55	7.97
	3H	10.45	11.12	11.51	12.18	13.61	5.93	6.60	6.99	7.66	9.10
	4H	11.05	11.69	12.12	12.75	14.19	6.38	7.01	7.45	8.08	9.52
	6H	11.47	12.05	12.55	13.12	14.58	6.70	7.28	7.78	8.35	9.80
	8H	11.59	12.15	12.68	13.23	14.68	6.79	7.34	7.87	8.42	9.87
	12H	11.65	12.18	12.74	13.26	14.73	6.83	7.36	7.92	8.43	9.91
4H	2H	8.78	9.42	9.86	10.48	11.92	5.33	5.97	6.41	7.03	8.47
	3H	10.61	11.13	11.69	12.22	13.68	6.68	7.21	7.76	8.29	9.75
	4H	11.30	11.78	12.39	12.86	14.34	7.22	7.71	8.31	8.79	10.27
	6H	11.81	12.22	12.91	13.32	14.80	7.64	8.06	8.74	9.16	10.63
	8H	11.98	12.37	13.08	13.46	14.95	7.77	8.16	8.87	9.25	10.74
	12H	12.07	12.42	13.19	13.53	15.02	7.83	8.18	8.95	9.29	10.78
8H	4H	11.26	11.64	12.36	12.74	14.23	7.50	7.89	8.60	8.98	10.47
	6H	11.82	12.14	12.94	13.28	14.76	8.02	8.34	9.14	9.47	10.96
	8H	12.04	12.32	13.17	13.44	14.94	8.21	8.49	9.34	9.61	11.11
	12H	12.17	12.42	13.30	13.53	15.08	8.33	8.57	9.46	9.69	11.23
12H	4H	11.21	11.56	12.32	12.66	14.16	7.50	7.85	8.62	8.96	10.45
	6H	11.80	12.08	12.92	13.20	14.70	8.07	8.35	9.19	9.46	10.97
	8H	12.02	12.26	13.15	13.38	14.92	8.27	8.52	9.40	9.63	11.18

END OF REPORT