

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: P929096

Luminaire Tested: DFN2DIP-HX4F0-110D110US935-FLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P929096
REPORT IS A COMBINATION OF REPORTS P900959 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-110D110US935-FLLONL
Description: 4 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

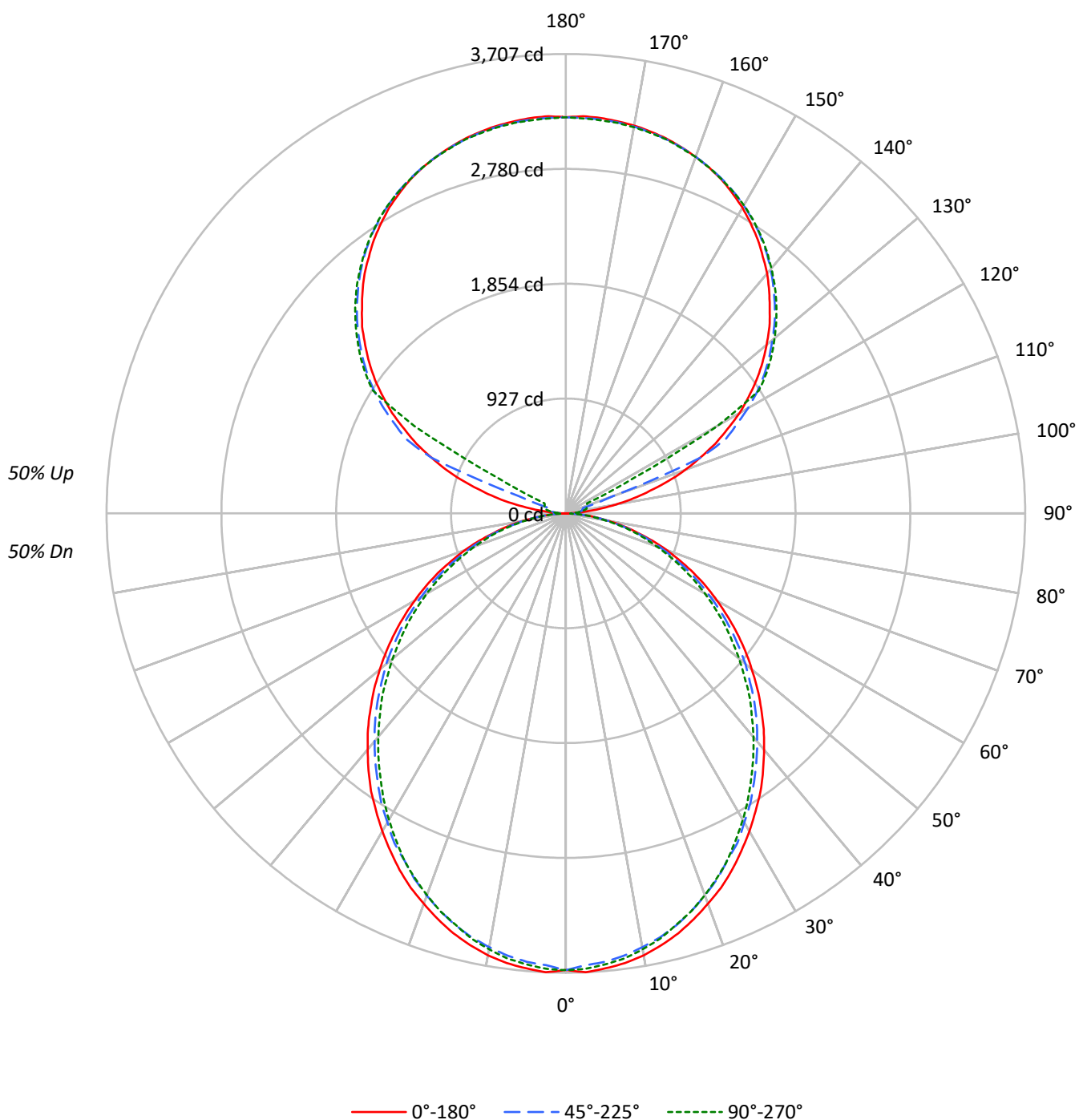
Lumens per Lamp: N/A
Luminaire Lumens: 18752.5 lumens
Efficiency: N/A
Efficacy: 94.0 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 199.5
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	107	107	107	107	99	99	99	99	83	83	83	69	69	69	56	56	56
1	98	93	90	86	90	86	83	80	73	71	68	61	59	58	50	48	47
2	89	82	75	70	82	76	70	66	64	60	57	53	51	48	44	42	40
3	81	72	64	59	75	66	60	55	56	52	48	47	44	41	39	36	34
4	74	64	56	50	68	59	52	47	50	45	41	42	38	35	35	32	29
5	68	57	48	42	63	53	45	40	45	39	35	38	34	30	31	28	26
6	63	51	43	37	58	47	40	35	40	35	31	34	30	27	28	25	23
7	58	46	38	32	53	43	36	30	37	31	27	31	27	23	26	23	20
8	54	42	34	29	50	39	32	27	33	28	24	28	24	21	24	20	18
9	50	38	30	25	46	35	29	24	31	25	21	26	22	19	22	19	16
10	47	35	28	23	43	33	26	22	28	23	19	24	20	17	20	17	15

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2740	2740	2740
5°	2745	2702	2720
10°	2723	2666	2684
15°	2683	2623	2626
20°	2629	2562	2568
25°	2575	2489	2500
30°	2508	2422	2413
35°	2445	2342	2322
40°	2366	2261	2234
45°	2288	2181	2145
50°	2203	2096	2042
55°	2113	1998	1948
60°	2012	1881	1839
65°	1902	1761	1711
70°	1762	1614	1573
75°	1567	1438	1446
80°	1333	1215	1203
85°	968	828	800

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2288 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	346.9	1.8
10°-20°	975.9	5.2
20°-30°	1434.2	7.6
30°-40°	1665.7	8.9
40°-50°	1663.7	8.9
50°-60°	1450.7	7.7
60°-70°	1072.4	5.7
70°-80°	606.7	3.2
80°-90°	165.7	0.9
90°-100°	105.4	0.6
100°-110°	392.9	2.1
110°-120°	1042.0	5.6
120°-130°	1728.3	9.2
130°-140°	1835.9	9.8
140°-150°	1706.2	9.1
150°-160°	1371.8	7.3
160°-170°	883.9	4.7
170°-180°	304.2	1.6
0°-30°	2757.0	14.7
0°-40°	4422.7	23.6
0°-60°	7537.0	40.2
0°-90°	9381.9	50.0
90°-120°	1540.3	8.2
90°-150°	6810.7	36.3
90°-180°	9371.0	50.0
0°-180°	18752.5	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3685	3685	3685	3685	3685	
5°	3685	3671	3632	3660	3654	350
15°	3508	3487	3441	3455	3438	988
25°	3175	3147	3087	3094	3087	1461
35°	2739	2704	2647	2626	2608	1711
45°	2229	2204	2151	2112	2098	1720
55°	1687	1666	1623	1580	1563	1508
65°	1138	1116	1081	1049	1031	1125
75°	595	588	570	549	556	635
85°	145	142	138	127	124	162
90°	2	28	46	58	62	17
95°	150	74	90	102	99	178
105°	703	773	141	166	176	751
115°	1330	1369	1427	356	190	1309
125°	1880	1910	1954	1971	1978	1677
135°	2327	2364	2384	2408	2403	1797
145°	2699	2697	2736	2752	2741	1688
155°	2972	2951	2979	2993	2974	1370
165°	3132	3118	3125	3141	3125	885
175°	3203	3187	3192	3208	3185	305
180°	3196	3196	3196	3196	3196	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3685.3	3685.3	3685.3	3685.3	3685.3
2.5°	3706.6	3689.0	3649.9	3685.3	3678.5
5°	3685.3	3671.3	3632.2	3660.4	3653.7
7.5°	3660.4	3639.4	3600.3	3628.9	3621.7
10°	3621.7	3596.8	3554.4	3582.5	3572.0
12.5°	3568.3	3547.2	3504.8	3522.4	3515.3
15°	3508.1	3487.0	3440.8	3455.1	3437.5
17.5°	3433.7	3412.7	3366.4	3384.1	3366.4
20°	3352.1	3331.0	3281.4	3291.9	3278.1
22.5°	3270.9	3238.9	3192.7	3192.7	3185.5
25°	3175.0	3146.9	3086.7	3093.5	3086.7
27.5°	3068.6	3043.8	2997.9	2987.4	2969.8
30°	2962.6	2934.0	2881.0	2870.5	2856.2
32.5°	2849.0	2828.0	2771.2	2749.8	2735.5
35°	2739.3	2704.0	2647.1	2625.7	2608.1
37.5°	2615.2	2583.3	2526.5	2501.6	2484.0
40°	2487.8	2459.2	2402.4	2370.8	2356.6
42.5°	2363.7	2335.1	2278.7	2243.0	2222.0
45°	2229.1	2204.2	2150.9	2112.2	2097.9
47.5°	2097.9	2073.1	2016.3	1977.2	1956.1
50°	1959.5	1941.9	1892.2	1842.6	1825.0
52.5°	1825.0	1800.1	1754.3	1715.1	1690.3
55°	1687.0	1665.5	1623.1	1580.5	1562.9
57.5°	1548.6	1530.9	1484.7	1442.2	1427.9
60°	1410.2	1396.4	1346.7	1307.6	1297.1
62.5°	1275.7	1250.9	1215.5	1180.2	1165.9
65°	1137.6	1116.2	1080.9	1049.0	1031.3
67.5°	995.9	977.9	946.3	921.5	907.2
70°	864.7	850.4	818.5	793.7	779.7
72.5°	730.1	715.8	698.2	673.4	662.8
75°	595.1	588.4	570.3	549.3	556.5
77.5°	474.8	460.5	453.4	442.9	432.4
80°	354.6	350.8	343.6	333.1	326.0
82.5°	241.0	241.0	237.6	223.3	223.3
85°	145.2	141.7	138.4	127.4	124.1
87.5°	63.9	56.7	49.6	39.1	35.3
90°	2.2	27.7	46.1	57.9	62.3
92.5°	57.9	48.6	55.4	60.2	62.3
95°	150.2	73.9	90.1	101.9	99.4
97.5°	270.5	81.0	117.8	124.9	127.2
100°	409.5	92.6	131.8	150.2	154.9
102.5°	561.9	557.5	136.5	161.8	168.9
105°	703.1	772.6	141.2	166.4	175.8
107.5°	867.4	925.0	145.9	171.1	180.5
110°	1024.7	1073.1	404.8	173.6	182.6



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1172.8	1214.2	1174.9	178.0	185.1
115°	1329.8	1369.1	1427.1	356.2	189.8
117.5°	1466.4	1512.5	1552.0	1221.1	615.2
120°	1619.0	1653.6	1695.4	1723.1	1410.8
122.5°	1748.4	1785.5	1831.9	1845.6	1848.1
125°	1880.3	1910.5	1954.4	1970.6	1977.5
127.5°	2000.5	2032.9	2067.8	2090.9	2093.1
130°	2113.9	2151.0	2176.3	2201.8	2199.7
132.5°	2229.6	2259.8	2285.1	2305.9	2303.8
135°	2326.9	2363.9	2384.5	2407.9	2403.1
137.5°	2428.5	2456.2	2479.5	2502.6	2495.7
140°	2527.9	2546.5	2571.8	2592.6	2581.1
142.5°	2611.3	2627.5	2657.5	2675.9	2664.4
145°	2699.2	2696.7	2736.0	2752.3	2740.7
147.5°	2775.3	2768.5	2807.7	2819.3	2810.2
150°	2849.5	2833.3	2870.3	2884.1	2872.6
152.5°	2911.8	2893.4	2928.0	2942.0	2925.9
155°	2972.0	2951.3	2979.1	2992.8	2974.4
157.5°	3020.6	3002.1	3023.1	3039.2	3020.6
160°	3062.3	3048.3	3062.3	3076.0	3059.8
162.5°	3099.1	3085.4	3096.9	3113.1	3092.3
165°	3131.5	3117.8	3124.7	3140.8	3124.7
167.5°	3157.0	3143.1	3150.2	3166.4	3145.6
170°	3178.0	3163.9	3168.6	3184.8	3163.9
172.5°	3191.6	3178.0	3182.6	3198.8	3178.0
175°	3203.2	3187.0	3191.6	3207.9	3184.8
177.5°	3207.9	3191.6	3194.1	3210.3	3189.5
180°	3196.4	3196.4	3196.4	3196.4	3196.4

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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	10.78	11.64	11.73	12.61	13.88	10.35	11.21	11.30	12.18	13.45
	3H	12.44	13.21	13.41	14.19	15.49	11.97	12.74	12.93	13.72	15.01
	4H	13.03	13.76	14.01	14.74	16.05	12.55	13.29	13.54	14.27	15.57
	6H	13.43	14.10	14.42	15.09	16.41	12.95	13.63	13.95	14.62	15.93
	8H	13.53	14.17	14.53	15.18	16.49	13.06	13.70	14.06	14.71	16.02
	12H	13.58	14.19	14.59	15.19	16.53	13.10	13.71	14.10	14.71	16.05
4H	2H	11.24	11.97	12.23	12.96	14.26	10.90	11.63	11.88	12.61	13.91
	3H	13.11	13.72	14.10	14.73	16.05	12.71	13.32	13.71	14.34	15.65
	4H	13.82	14.38	14.83	15.39	16.73	13.42	13.98	14.42	14.98	16.32
	6H	14.34	14.82	15.36	15.85	17.19	13.93	14.41	14.95	15.44	16.78
	8H	14.49	14.94	15.51	15.96	17.31	14.08	14.53	15.09	15.55	16.90
	12H	14.56	14.97	15.60	16.01	17.36	14.14	14.55	15.18	15.59	16.94
8H	4H	14.02	14.47	15.04	15.49	16.84	13.66	14.11	14.68	15.13	16.48
	6H	14.65	15.02	15.69	16.09	17.44	14.29	14.66	15.33	15.73	17.08
	8H	14.87	15.20	15.92	16.25	17.62	14.50	14.83	15.55	15.88	17.25
	12H	15.01	15.29	16.06	16.34	17.75	14.62	14.91	15.68	15.96	17.37
12H	4H	14.01	14.41	15.04	15.45	16.81	13.65	14.06	14.69	15.10	16.45
	6H	14.68	15.01	15.73	16.06	17.43	14.33	14.66	15.38	15.71	17.08
	8H	14.93	15.21	15.98	16.26	17.67	14.57	14.86	15.62	15.90	17.31

END OF REPORT