

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: P916449

Luminaire Tested: DFN2DIP-HX4F0-100D110US930-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P916449
REPORT IS A COMBINATION OF REPORTS P899438 AND P896188
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-100D110US930-RLLFLL
Description: 4 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

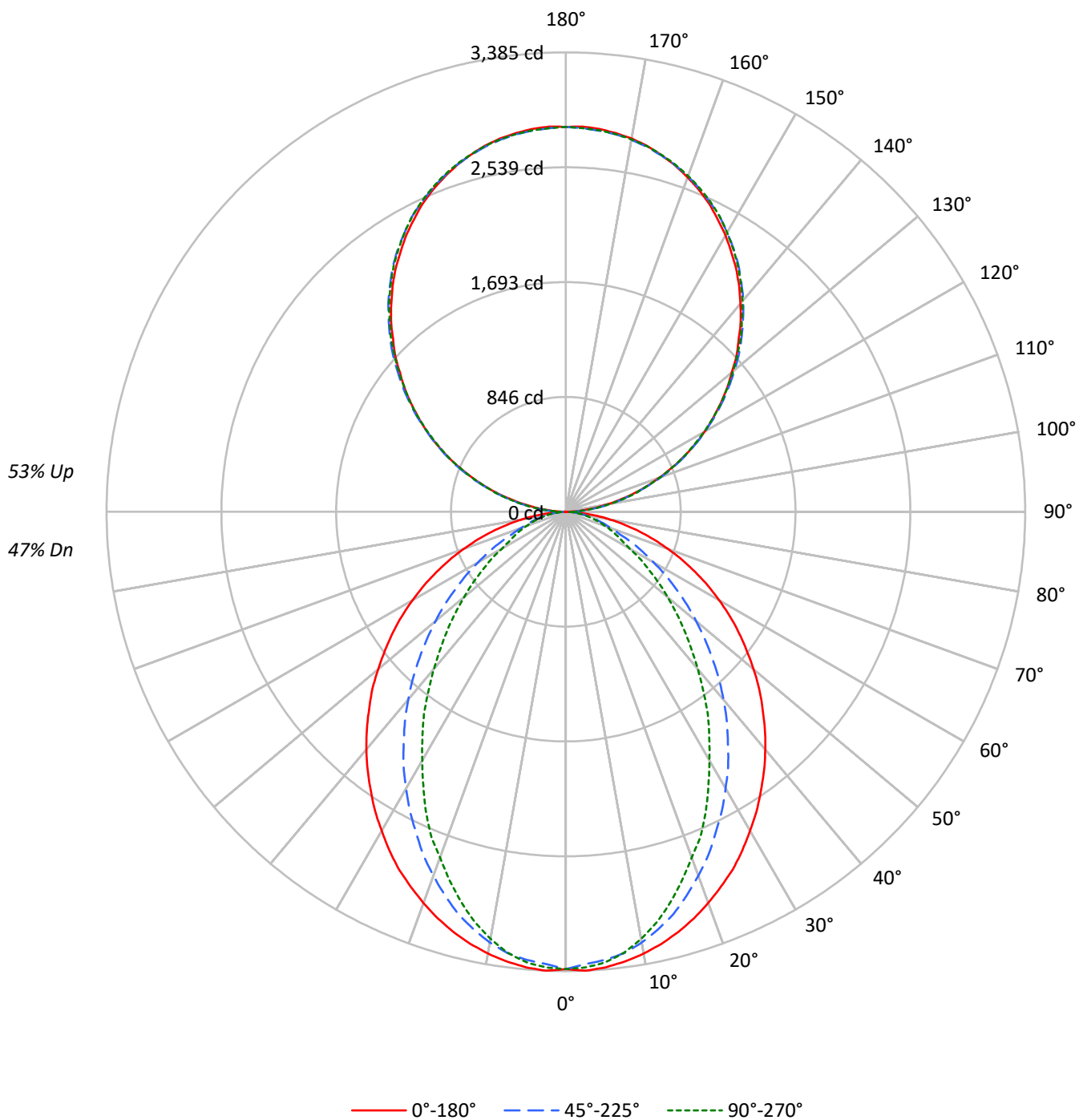
Lumens per Lamp: N/A
Luminaire Lumens: 14867.0 lumens
Efficiency: N/A
Efficacy: 90.3 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 164.6
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	106	106	106	106	98	98	98	98	81	81	81	67	67	67	53	53	53
1	97	93	90	86	89	86	83	80	72	70	68	59	58	56	48	47	46
2	89	82	76	71	82	76	71	66	64	60	57	53	50	48	42	41	39
3	82	72	65	60	75	67	61	56	57	52	48	47	44	41	38	36	34
4	75	64	57	51	69	60	53	48	51	46	42	42	38	35	34	32	30
5	69	58	50	44	63	53	46	41	45	40	36	38	34	31	31	28	26
6	64	52	44	38	58	48	41	36	41	36	32	34	30	27	28	25	23
7	59	47	39	34	54	44	37	32	37	32	28	32	27	24	26	23	21
8	55	43	35	30	50	40	33	28	34	29	25	29	25	22	24	21	19
9	51	39	32	27	47	36	30	25	31	26	23	27	23	20	22	19	17
10	48	36	29	24	44	34	27	23	29	24	20	25	21	18	21	18	16

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2506	2506	2506
5°	2510	2466	2482
10°	2485	2418	2401
15°	2451	2338	2276
20°	2406	2228	2123
25°	2360	2105	1975
30°	2298	1979	1788
35°	2237	1843	1623
40°	2175	1702	1434
45°	2104	1546	1263
50°	2029	1388	1096
55°	1952	1220	935
60°	1862	1044	770
65°	1759	864	693
70°	1634	697	627
75°	1477	615	571
80°	1249	517	496
85°	873	346	373

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 2138 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	315.8	2.1
10°-20°	866.9	5.8
20°-30°	1217.2	8.2
30°-40°	1326.8	8.9
40°-50°	1219.5	8.2
50°-60°	957.7	6.4
60°-70°	623.4	4.2
70°-80°	320.9	2.2
80°-90°	90.0	0.6
90°-100°	175.5	1.2
100°-110°	557.7	3.8
110°-120°	954.3	6.4
120°-130°	1255.1	8.4
130°-140°	1408.8	9.5
140°-150°	1381.5	9.3
150°-160°	1158.9	7.8
160°-170°	768.5	5.2
170°-180°	268.6	1.8
0°-30°	2399.9	16.1
0°-40°	3726.7	25.1
0°-60°	5903.9	39.7
0°-90°	6938.1	46.7
90°-120°	1687.5	11.4
90°-150°	5732.8	38.6
90°-180°	7929.0	53.3
0°-180°	14867.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3370	3370	3370	3370	3370	
5°	3370	3354	3315	3342	3333	320
15°	3205	3171	3068	3010	2979	903
25°	2909	2812	2610	2485	2440	1338
35°	2507	2351	2083	1891	1823	1569
45°	2049	1845	1525	1308	1235	1583
55°	1558	1320	991	808	750	1392
65°	1052	805	531	427	418	1043
75°	561	348	244	223	220	593
85°	131	67	58	58	58	150
90°	2	31	84	79	81	15
95°	125	149	153	153	149	139
105°	515	522	527	531	531	543
115°	958	971	967	965	958	947
125°	1393	1414	1407	1400	1397	1245
135°	1802	1828	1833	1831	1824	1393
145°	2187	2204	2218	2221	2211	1367
155°	2501	2508	2516	2528	2520	1151
165°	2721	2718	2718	2735	2723	768
175°	2831	2824	2819	2836	2822	269
180°	2836	2836	2836	2836	2836	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3369.6	3369.6	3369.6	3369.6	3369.6
2.5°	3384.8	3369.6	3336.0	3366.7	3360.6
5°	3369.6	3354.4	3314.6	3342.2	3333.0
7.5°	3342.2	3324.0	3281.2	3293.2	3278.1
10°	3305.5	3284.2	3223.4	3214.0	3195.9
12.5°	3260.0	3232.4	3149.9	3131.8	3098.1
15°	3204.9	3171.3	3067.7	3009.8	2979.4
17.5°	3140.9	3092.0	2963.9	2896.9	2848.1
20°	3067.7	3006.6	2854.2	2778.2	2710.9
22.5°	2988.5	2918.3	2741.3	2637.8	2592.2
25°	2909.2	2811.6	2610.3	2485.4	2439.5
27.5°	2814.7	2710.9	2488.3	2345.0	2274.8
30°	2714.1	2597.9	2354.0	2198.8	2116.3
32.5°	2616.5	2476.0	2226.3	2043.1	1966.7
35°	2506.7	2351.2	2082.9	1890.8	1823.4
37.5°	2400.0	2232.0	1948.6	1738.1	1662.0
40°	2287.1	2104.3	1808.2	1591.8	1512.5
42.5°	2171.2	1976.1	1668.2	1442.3	1366.3
45°	2049.3	1844.8	1524.9	1308.1	1234.9
47.5°	1933.5	1717.0	1387.6	1170.8	1103.9
50°	1805.3	1588.9	1253.4	1042.8	979.0
52.5°	1680.1	1451.4	1125.3	924.0	866.1
55°	1558.1	1320.4	991.0	808.2	750.2
57.5°	1433.3	1189.3	872.3	701.4	652.6
60°	1305.1	1061.2	747.1	591.7	542.9
62.5°	1180.2	936.3	640.3	494.1	469.8
65°	1052.1	804.9	530.6	427.1	417.7
67.5°	930.2	683.0	427.1	375.0	365.9
70°	802.0	564.3	353.6	323.2	311.0
72.5°	680.0	454.2	295.7	271.4	265.3
75°	561.0	347.5	243.9	222.6	219.6
77.5°	442.3	246.9	192.2	179.9	173.7
80°	332.2	177.0	146.3	134.3	134.3
82.5°	231.6	119.0	100.6	94.5	94.5
85°	131.0	66.9	57.9	57.9	57.9
87.5°	48.8	24.3	24.3	21.4	21.4
90°	2.5	30.8	83.8	78.7	81.2
92.5°	53.0	71.8	74.4	77.0	77.0
95°	124.8	148.8	153.0	153.0	148.8
97.5°	207.8	230.0	239.5	239.5	239.5
100°	303.5	323.2	330.0	330.0	327.5
102.5°	404.5	419.0	428.4	431.0	428.4
105°	514.8	521.6	526.8	531.0	531.0
107.5°	624.2	634.5	634.5	636.2	624.2
110°	730.3	744.0	744.0	744.0	737.1

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	844.8	859.3	856.8	849.9	844.8
115°	957.7	971.3	967.1	964.6	957.7
117.5°	1069.8	1088.5	1076.5	1069.8	1062.9
120°	1182.6	1201.4	1182.6	1182.6	1174.9
122.5°	1285.2	1309.1	1297.1	1290.3	1285.2
125°	1392.9	1414.3	1407.4	1399.8	1397.2
127.5°	1498.1	1524.6	1515.2	1505.0	1498.1
130°	1596.4	1627.3	1622.9	1617.8	1608.4
132.5°	1706.7	1730.7	1732.4	1720.4	1713.6
135°	1801.6	1828.1	1833.3	1830.8	1823.9
137.5°	1907.7	1929.1	1933.3	1931.6	1921.4
140°	2000.9	2022.3	2034.3	2034.3	2024.9
142.5°	2096.7	2118.1	2124.9	2127.4	2118.1
145°	2187.3	2204.4	2218.1	2220.6	2211.3
147.5°	2268.6	2289.9	2300.2	2304.4	2295.1
150°	2352.4	2366.9	2376.3	2384.0	2376.3
152.5°	2426.7	2441.2	2453.2	2462.7	2453.2
155°	2501.2	2507.9	2515.7	2527.7	2519.9
157.5°	2565.3	2570.4	2574.6	2591.8	2579.8
160°	2622.6	2627.7	2630.2	2644.8	2634.6
162.5°	2675.6	2675.6	2678.2	2694.4	2682.4
165°	2720.9	2718.3	2718.3	2735.4	2723.4
167.5°	2761.9	2754.2	2754.2	2771.4	2759.4
170°	2792.7	2785.9	2783.3	2800.4	2785.9
172.5°	2814.1	2807.2	2804.7	2821.8	2807.2
175°	2831.2	2824.4	2819.2	2836.3	2821.8
177.5°	2840.6	2833.7	2828.6	2843.2	2828.6
180°	2836.3	2836.3	2836.3	2836.3	2836.3

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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	10.02	10.82	11.01	11.82	13.14	5.99	6.79	6.98	7.79	9.11
	3H	11.69	12.41	12.70	13.42	14.76	7.18	7.90	8.18	8.91	10.25
	4H	12.30	12.98	13.32	13.99	15.34	7.63	8.31	8.64	9.32	10.67
	6H	12.72	13.35	13.75	14.36	15.73	7.95	8.58	8.98	9.59	10.95
	8H	12.85	13.44	13.88	14.48	15.83	8.04	8.64	9.07	9.67	11.03
	12H	12.91	13.48	13.95	14.50	15.88	8.09	8.65	9.12	9.68	11.06
4H	2H	10.03	10.71	11.05	11.72	13.07	6.58	7.26	7.60	8.27	9.62
	3H	11.86	12.43	12.89	13.47	14.83	7.93	8.50	8.96	9.54	10.90
	4H	12.55	13.07	13.59	14.10	15.49	8.48	9.00	9.52	10.03	11.42
	6H	13.07	13.51	14.11	14.57	15.95	8.90	9.34	9.95	10.40	11.78
	8H	13.24	13.66	14.29	14.70	16.10	9.03	9.45	10.08	10.49	11.89
	12H	13.34	13.71	14.40	14.77	16.18	9.10	9.47	10.16	10.53	11.93
8H	4H	12.52	12.93	13.57	13.98	15.38	8.76	9.17	9.81	10.22	11.62
	6H	13.09	13.43	14.16	14.52	15.91	9.28	9.62	10.35	10.71	12.11
	8H	13.30	13.60	14.38	14.68	16.09	9.47	9.77	10.55	10.85	12.26
	12H	13.44	13.70	14.52	14.77	16.23	9.59	9.86	10.67	10.93	12.38
12H	4H	12.47	12.84	13.54	13.91	15.31	8.76	9.14	9.83	10.20	11.60
	6H	13.06	13.36	14.14	14.44	15.85	9.33	9.63	10.41	10.70	12.12
	8H	13.28	13.55	14.36	14.61	16.07	9.54	9.80	10.62	10.87	12.33

END OF REPORT