

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: P921905

Luminaire Tested: DFN2DIP-HX4F0-100D110US940-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P921905
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-HX4F0-100D110US940-RLLFLL
Description: 4 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

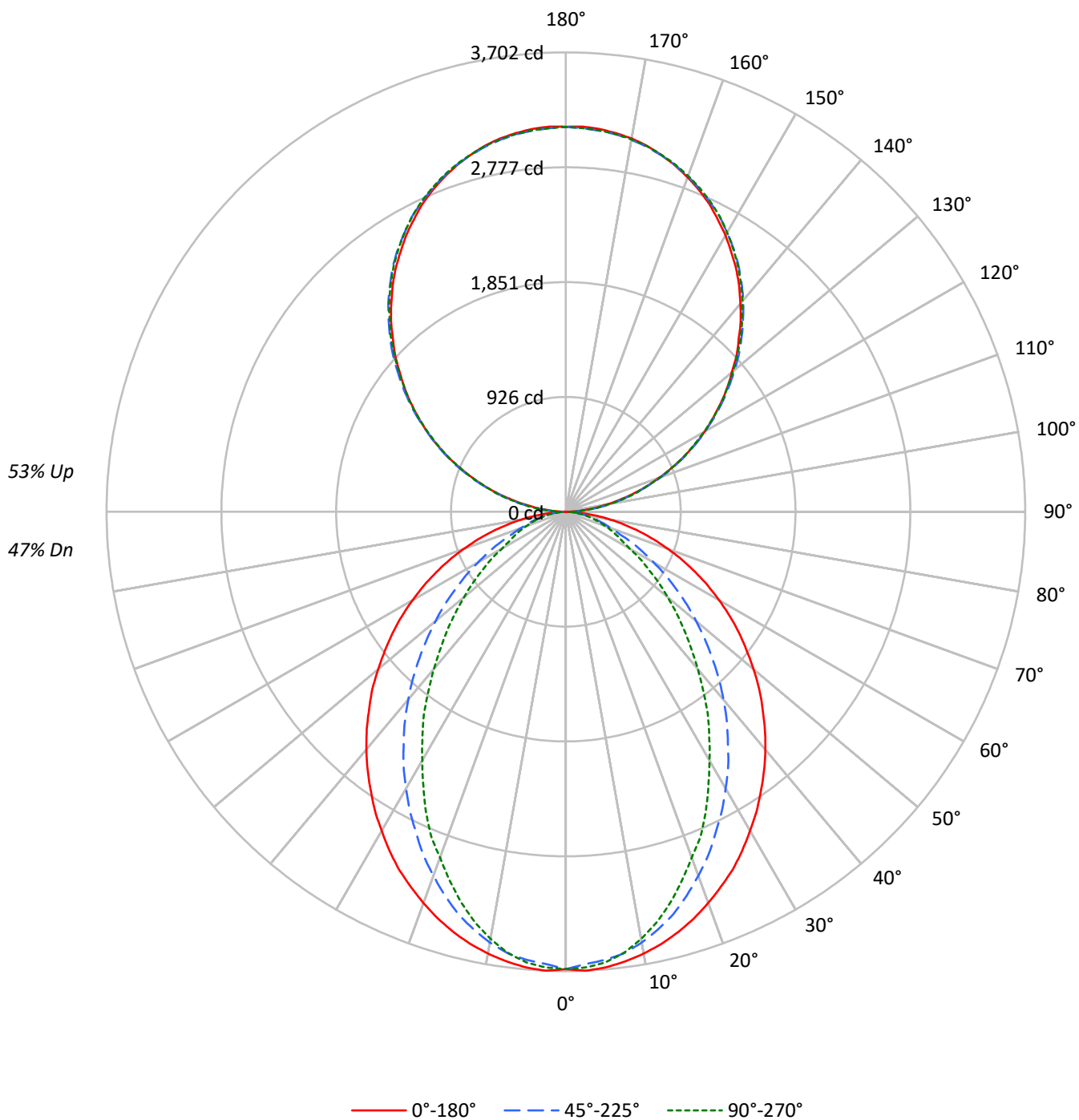
Lumens per Lamp: N/A
Luminaire Lumens: 16260.3 lumens
Efficiency: N/A
Efficacy: 98.8 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: General Diffuse

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					0
RW	70	50	30	10	70	50	30	10	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	47	47	47
1	97	93	90	86	89	86	83	80	72	70	68	59	58	56	48	47	46	40	40	40
2	89	82	76	71	82	76	71	66	64	60	57	53	50	48	42	41	39	34	34	34
3	82	72	65	60	75	67	61	56	57	52	48	47	44	41	38	36	34	30	30	30
4	75	64	57	51	69	60	53	48	51	46	42	42	38	35	34	32	30	26	26	26
5	69	58	50	44	63	53	46	41	45	40	36	38	34	31	31	28	26	23	23	23
6	64	52	44	38	58	48	41	36	41	36	32	34	30	27	28	25	23	20	20	20
7	59	47	39	34	54	44	37	32	37	32	28	32	27	24	26	23	21	18	18	18
8	55	43	35	30	50	40	33	28	34	29	25	29	25	22	24	21	19	16	16	16
9	51	39	32	27	47	36	30	25	31	26	23	27	23	20	22	19	17	15	15	15
10	48	36	29	24	44	34	27	23	29	24	20	25	21	18	21	18	16	14	14	14

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2740	2740	2740
5°	2745	2697	2714
10°	2718	2644	2626
15°	2681	2557	2490
20°	2631	2437	2322
25°	2581	2302	2161
30°	2513	2164	1955
35°	2447	2015	1775
40°	2379	1861	1569
45°	2301	1691	1381
50°	2219	1518	1198
55°	2135	1334	1023
60°	2036	1141	842
65°	1924	945	758
70°	1787	763	686
75°	1615	673	624
80°	1367	566	542
85°	955	379	408

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 2338 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	345.4	2.1
10°-20°	948.2	5.8
20°-30°	1331.2	8.2
30°-40°	1451.1	8.9
40°-50°	1333.8	8.2
50°-60°	1047.4	6.4
60°-70°	681.8	4.2
70°-80°	351.0	2.2
80°-90°	98.4	0.6
90°-100°	192.0	1.2
100°-110°	609.9	3.8
110°-120°	1043.8	6.4
120°-130°	1372.7	8.4
130°-140°	1540.8	9.5
140°-150°	1511.0	9.3
150°-160°	1267.5	7.8
160°-170°	840.6	5.2
170°-180°	293.8	1.8
0°-30°	2624.8	16.1
0°-40°	4076.0	25.1
0°-60°	6457.2	39.7
0°-90°	7588.3	46.7
90°-120°	1845.7	11.4
90°-150°	6270.1	38.6
90°-180°	8672.0	53.3
0°-180°	16260.3	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3685	3685	3685	3685	3685	
5°	3685	3669	3625	3655	3645	349
15°	3505	3468	3355	3292	3259	988
25°	3182	3075	2855	2718	2668	1463
35°	2742	2572	2278	2068	1994	1716
45°	2241	2018	1668	1431	1351	1731
55°	1704	1444	1084	884	821	1523
65°	1151	880	580	467	457	1141
75°	614	380	267	243	240	649
85°	143	73	63	63	63	164
90°	3	34	92	86	89	16
95°	136	163	167	167	163	152
105°	563	570	576	581	581	594
115°	1048	1062	1058	1055	1048	1036
125°	1524	1547	1539	1531	1528	1361
135°	1970	2000	2005	2002	1995	1523
145°	2392	2411	2426	2429	2418	1495
155°	2736	2743	2752	2765	2756	1259
165°	2976	2973	2973	2992	2979	840
175°	3097	3089	3083	3102	3086	294
180°	3102	3102	3102	3102	3102	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3685.4	3685.4	3685.4	3685.4	3685.4
2.5°	3702.0	3685.4	3648.6	3682.2	3675.5
5°	3685.4	3668.8	3625.2	3655.4	3645.4
7.5°	3655.4	3635.5	3588.8	3601.9	3585.3
10°	3615.4	3592.0	3525.5	3515.2	3495.4
12.5°	3565.5	3535.4	3445.1	3425.3	3388.5
15°	3505.3	3468.5	3355.2	3291.9	3258.7
17.5°	3435.2	3381.8	3241.7	3168.4	3115.0
20°	3355.2	3288.4	3121.7	3038.6	2964.9
22.5°	3268.6	3191.8	2998.2	2885.0	2835.1
25°	3181.9	3075.1	2854.9	2718.3	2668.1
27.5°	3078.5	2964.9	2721.5	2564.7	2488.0
30°	2968.5	2841.4	2574.6	2404.9	2314.6
32.5°	2861.7	2708.0	2434.9	2234.6	2151.1
35°	2741.7	2571.5	2278.1	2068.0	1994.3
37.5°	2624.9	2441.2	2131.3	1900.9	1817.8
40°	2501.4	2301.5	1977.7	1741.0	1654.3
42.5°	2374.7	2161.3	1824.5	1577.5	1494.3
45°	2241.3	2017.7	1667.8	1430.7	1350.7
47.5°	2114.7	1877.9	1517.7	1280.6	1207.4
50°	1974.5	1737.8	1370.8	1140.5	1070.8
52.5°	1837.5	1587.4	1230.7	1010.6	947.3
55°	1704.1	1444.1	1083.9	884.0	820.6
57.5°	1567.6	1300.7	954.0	767.1	713.7
60°	1427.4	1160.7	817.1	647.2	593.8
62.5°	1290.8	1024.0	700.3	540.4	513.8
65°	1150.8	880.4	580.3	467.1	456.8
67.5°	1017.4	747.0	467.1	410.1	400.2
70°	877.2	617.2	386.7	353.5	340.1
72.5°	743.8	496.8	323.4	296.9	290.2
75°	613.6	380.0	266.8	243.4	240.2
77.5°	483.8	270.0	210.2	196.7	190.0
80°	363.4	193.6	160.0	146.9	146.9
82.5°	253.3	130.2	110.0	103.3	103.3
85°	143.3	73.2	63.3	63.3	63.3
87.5°	53.4	26.6	26.6	23.4	23.4
90°	2.8	33.7	91.7	86.1	88.8
92.5°	58.0	78.6	81.3	84.2	84.2
95°	136.5	162.7	167.4	167.4	162.7
97.5°	227.3	251.6	261.9	261.9	261.9
100°	332.0	353.5	361.0	361.0	358.2
102.5°	442.4	458.2	468.6	471.4	468.6
105°	563.0	570.5	576.1	580.8	580.8
107.5°	682.7	693.9	693.9	695.8	682.7
110°	798.7	813.7	813.7	813.7	806.2

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	924.0	939.9	937.1	929.6	924.0
115°	1047.5	1062.4	1057.7	1055.0	1047.5
117.5°	1170.0	1190.5	1177.4	1170.0	1162.5
120°	1293.4	1314.0	1293.4	1293.4	1285.0
122.5°	1405.7	1431.8	1418.7	1411.2	1405.7
125°	1523.5	1546.8	1539.4	1531.0	1528.1
127.5°	1638.5	1667.5	1657.2	1646.0	1638.5
130°	1746.1	1779.8	1775.0	1769.4	1759.2
132.5°	1866.7	1892.9	1894.8	1881.7	1874.2
135°	1970.5	1999.5	2005.1	2002.3	1994.8
137.5°	2086.5	2109.9	2114.5	2112.6	2101.5
140°	2188.4	2211.8	2224.9	2224.9	2214.7
142.5°	2293.2	2316.6	2324.1	2326.8	2316.6
145°	2392.3	2411.0	2426.0	2428.8	2418.5
147.5°	2481.2	2504.5	2515.8	2520.4	2510.2
150°	2572.9	2588.7	2599.0	2607.5	2599.0
152.5°	2654.2	2670.0	2683.2	2693.5	2683.2
155°	2735.6	2743.0	2751.5	2764.6	2756.1
157.5°	2805.7	2811.3	2815.9	2834.7	2821.5
160°	2868.4	2874.0	2876.7	2892.7	2881.5
162.5°	2926.3	2926.3	2929.2	2946.9	2933.8
165°	2975.9	2973.1	2973.1	2991.8	2978.7
167.5°	3020.8	3012.4	3012.4	3031.1	3018.0
170°	3054.5	3047.0	3044.2	3062.8	3047.0
172.5°	3077.8	3070.3	3067.6	3086.3	3070.3
175°	3096.6	3089.1	3083.4	3102.2	3086.3
177.5°	3106.8	3099.3	3093.7	3109.7	3093.7
180°	3102.2	3102.2	3102.2	3102.2	3102.2

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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	10.33	11.13	11.32	12.13	13.45	6.30	7.11	7.29	8.10	9.43
	3H	12.01	12.72	13.01	13.73	15.07	7.49	8.21	8.49	9.22	10.56
	4H	12.61	13.29	13.63	14.30	15.65	7.94	8.62	8.96	9.63	10.98
	6H	13.03	13.66	14.06	14.68	16.04	8.26	8.89	9.29	9.90	11.27
	8H	13.16	13.76	14.19	14.79	16.15	8.35	8.95	9.38	9.98	11.34
	12H	13.22	13.79	14.26	14.81	16.19	8.40	8.96	9.43	9.99	11.37
4H	2H	10.34	11.02	11.37	12.04	13.39	6.89	7.57	7.92	8.59	9.94
	3H	12.17	12.74	13.20	13.78	15.14	8.24	8.81	9.27	9.85	11.21
	4H	12.86	13.38	13.90	14.41	15.80	8.79	9.31	9.83	10.34	11.73
	6H	13.38	13.82	14.43	14.88	16.26	9.21	9.66	10.26	10.71	12.09
	8H	13.55	13.97	14.60	15.02	16.41	9.34	9.76	10.39	10.80	12.20
	12H	13.65	14.02	14.71	15.08	16.49	9.41	9.78	10.47	10.84	12.24
8H	4H	12.83	13.24	13.88	14.29	15.69	9.07	9.49	10.12	10.53	11.93
	6H	13.40	13.74	14.47	14.83	16.22	9.59	9.93	10.66	11.02	12.42
	8H	13.61	13.91	14.69	14.99	16.40	9.78	10.08	10.86	11.16	12.57
	12H	13.75	14.02	14.83	15.09	16.54	9.90	10.17	10.98	11.24	12.69
12H	4H	12.78	13.15	13.85	14.22	15.62	9.07	9.45	10.14	10.51	11.91
	6H	13.37	13.67	14.45	14.75	16.16	9.64	9.94	10.72	11.02	12.43
	8H	13.59	13.86	14.67	14.93	16.38	9.85	10.12	10.93	11.18	12.64

END OF REPORT