

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: P921885

Luminaire Tested: DFN2DIP-HX4F0-090D100US940-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P921885
REPORT IS A COMBINATION OF REPORTS P899418 AND P896188
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-090D100US940-RLLFLL
Description: 4 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

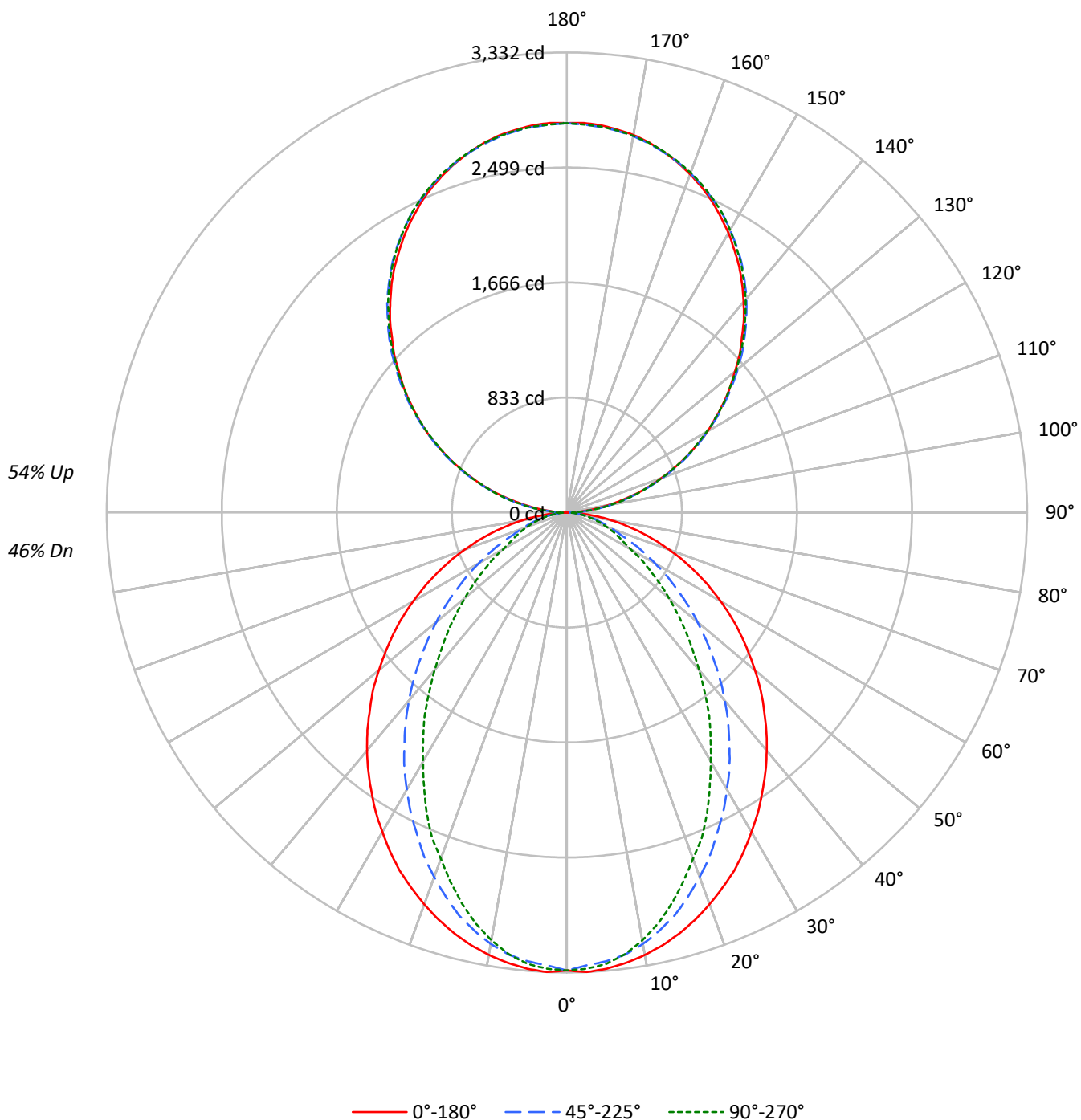
Lumens per Lamp: N/A
Luminaire Lumens: 14713.2 lumens
Efficiency: N/A
Efficacy: 100.5 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 146.4
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	106	106	106	106	98	98	98	98	81	81	81	66	66	66	53	53	53
1	97	93	90	86	89	86	83	80	72	70	68	59	58	56	47	46	45
2	89	82	76	71	82	76	71	66	64	60	57	52	50	48	42	41	39
3	82	72	65	60	75	67	61	56	56	52	48	47	44	41	38	36	34
4	75	64	57	51	69	60	53	48	50	45	41	42	38	35	34	32	29
5	69	58	50	44	63	53	46	41	45	40	36	38	34	31	31	28	26
6	63	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	31	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	33	27	23	29	24	20	25	21	18	21	18	15

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2466	2466	2466
5°	2470	2427	2443
10°	2446	2380	2363
15°	2413	2302	2241
20°	2368	2193	2090
25°	2323	2072	1944
30°	2262	1948	1760
35°	2202	1814	1598
40°	2141	1675	1412
45°	2071	1522	1243
50°	1997	1367	1078
55°	1921	1201	920
60°	1833	1027	758
65°	1731	851	682
70°	1608	686	617
75°	1454	606	562
80°	1230	509	488
85°	859	341	368

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 2127 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	310.9	2.1
10°-20°	853.4	5.8
20°-30°	1198.1	8.1
30°-40°	1306.0	8.9
40°-50°	1200.4	8.2
50°-60°	942.7	6.4
60°-70°	613.6	4.2
70°-80°	315.9	2.1
80°-90°	88.7	0.6
90°-100°	174.5	1.2
100°-110°	554.5	3.8
110°-120°	948.9	6.4
120°-130°	1247.9	8.5
130°-140°	1400.8	9.5
140°-150°	1373.6	9.3
150°-160°	1152.3	7.8
160°-170°	764.1	5.2
170°-180°	267.1	1.8
0°-30°	2362.4	16.1
0°-40°	3668.4	24.9
0°-60°	5811.5	39.5
0°-90°	6829.6	46.4
90°-120°	1677.9	11.4
90°-150°	5700.1	38.7
90°-180°	7884.0	53.6
0°-180°	14713.2	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3317	3317	3317	3317	3317	
5°	3317	3302	3263	3290	3281	315
15°	3155	3122	3020	2963	2933	889
25°	2864	2768	2570	2446	2401	1317
35°	2468	2314	2050	1861	1795	1544
45°	2017	1816	1501	1288	1216	1558
55°	1534	1300	975	796	738	1371
65°	1036	792	522	420	411	1027
75°	552	342	240	219	216	584
85°	129	66	57	57	57	148
90°	3	31	83	78	81	15
95°	124	148	152	152	148	138
105°	512	519	524	528	528	540
115°	952	966	962	959	952	942
125°	1385	1406	1400	1392	1389	1238
135°	1791	1818	1823	1820	1814	1385
145°	2175	2192	2206	2208	2199	1359
155°	2487	2494	2501	2513	2506	1145
165°	2705	2703	2703	2720	2708	763
175°	2815	2808	2803	2820	2806	267
180°	2820	2820	2820	2820	2820	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3316.9	3316.9	3316.9	3316.9	3316.9
2.5°	3331.9	3316.9	3283.7	3314.0	3308.0
5°	3316.9	3301.9	3262.8	3289.8	3280.9
7.5°	3289.8	3272.0	3230.0	3241.7	3226.7
10°	3253.9	3232.8	3173.0	3163.7	3145.9
12.5°	3208.9	3181.9	3100.7	3082.8	3049.6
15°	3154.8	3121.7	3019.8	2962.7	2932.8
17.5°	3091.7	3043.7	2917.5	2851.6	2803.5
20°	3019.8	2959.6	2809.5	2734.7	2668.4
22.5°	2941.8	2872.6	2698.4	2596.5	2551.6
25°	2863.7	2767.5	2569.5	2446.5	2401.3
27.5°	2770.7	2668.4	2449.4	2308.3	2239.2
30°	2671.7	2557.3	2317.2	2164.4	2083.1
32.5°	2575.4	2437.2	2191.4	2011.2	1936.0
35°	2467.5	2314.3	2050.3	1861.2	1794.9
37.5°	2362.4	2197.2	1918.2	1710.8	1636.0
40°	2251.3	2071.4	1779.9	1566.9	1488.9
42.5°	2137.3	1945.3	1642.0	1419.8	1344.9
45°	2017.2	1816.0	1500.9	1287.5	1215.6
47.5°	1903.2	1690.1	1365.9	1152.5	1086.6
50°	1777.1	1564.0	1233.8	1026.4	963.7
52.5°	1653.9	1428.7	1107.7	909.5	852.6
55°	1533.7	1299.7	975.4	795.6	738.5
57.5°	1410.9	1170.7	858.6	690.5	642.4
60°	1284.7	1044.5	735.4	582.5	534.4
62.5°	1161.8	921.7	630.3	486.3	462.4
65°	1035.6	792.4	522.3	420.4	411.2
67.5°	915.6	672.3	420.4	369.1	360.2
70°	789.5	555.4	348.1	318.2	306.0
72.5°	669.4	447.1	291.1	267.2	261.2
75°	552.2	342.1	240.1	219.1	216.2
77.5°	435.3	243.0	189.1	177.1	171.0
80°	327.1	174.2	143.9	132.2	132.2
82.5°	228.0	117.2	99.1	93.0	93.0
85°	128.9	65.9	57.0	57.0	57.0
87.5°	48.1	23.9	23.9	21.0	21.0
90°	2.6	30.6	83.3	78.2	80.8
92.5°	52.7	71.4	74.0	76.5	76.5
95°	124.1	147.9	152.2	152.2	147.9
97.5°	206.6	228.7	238.1	238.1	238.1
100°	301.8	321.4	328.1	328.1	325.7
102.5°	402.2	416.6	426.0	428.5	426.0
105°	511.8	518.6	523.7	528.0	528.0
107.5°	620.6	630.9	630.9	632.6	620.6
110°	726.1	739.7	739.7	739.7	732.9

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	840.0	854.4	851.9	845.1	840.0
115°	952.3	965.8	961.6	959.0	952.3
117.5°	1063.6	1082.4	1070.4	1063.6	1056.8
120°	1175.8	1194.5	1175.8	1175.8	1168.2
122.5°	1277.8	1301.6	1289.8	1283.0	1277.8
125°	1385.0	1406.2	1399.5	1391.8	1389.3
127.5°	1489.6	1515.9	1506.5	1496.4	1489.6
130°	1587.3	1617.9	1613.7	1608.6	1599.3
132.5°	1697.0	1720.8	1722.5	1710.7	1703.8
135°	1791.4	1817.8	1822.8	1820.3	1813.5
137.5°	1896.8	1918.1	1922.3	1920.7	1910.4
140°	1989.5	2010.7	2022.7	2022.7	2013.3
142.5°	2084.7	2106.0	2112.7	2115.3	2106.0
145°	2174.8	2191.8	2205.5	2208.0	2198.6
147.5°	2255.6	2276.9	2287.1	2291.3	2282.0
150°	2339.0	2353.4	2362.8	2370.3	2362.8
152.5°	2412.9	2427.3	2439.3	2448.6	2439.3
155°	2486.9	2493.7	2501.3	2513.2	2505.5
157.5°	2550.6	2555.7	2560.0	2577.0	2565.1
160°	2607.6	2612.7	2615.2	2629.7	2619.5
162.5°	2660.3	2660.3	2662.8	2679.0	2667.1
165°	2705.4	2702.8	2702.8	2719.8	2707.9
167.5°	2746.2	2738.5	2738.5	2755.6	2743.6
170°	2776.8	2770.0	2767.4	2784.5	2770.0
172.5°	2798.0	2791.2	2788.6	2805.7	2791.2
175°	2815.0	2808.3	2803.2	2820.1	2805.7
177.5°	2824.4	2817.6	2812.5	2826.9	2812.5
180°	2820.1	2820.1	2820.1	2820.1	2820.1

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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	9.94	10.74	10.93	11.74	13.07	5.91	6.71	6.91	7.71	9.04
	3H	11.61	12.33	12.62	13.34	14.69	7.10	7.82	8.10	8.83	10.17
	4H	12.22	12.90	13.24	13.91	15.27	7.55	8.23	8.57	9.24	10.59
	6H	12.64	13.27	13.67	14.29	15.65	7.87	8.50	8.90	9.51	10.88
	8H	12.77	13.36	13.80	14.40	15.76	7.96	8.56	9.00	9.59	10.95
	12H	12.83	13.39	13.87	14.42	15.81	8.01	8.57	9.04	9.60	10.98
4H	2H	9.95	10.63	10.98	11.64	13.00	6.50	7.18	7.53	8.20	9.55
	3H	11.78	12.34	12.81	13.39	14.75	7.85	8.42	8.89	9.46	10.83
	4H	12.47	12.99	13.51	14.02	15.41	8.40	8.92	9.44	9.95	11.34
	6H	12.99	13.43	14.04	14.49	15.87	8.82	9.26	9.87	10.32	11.71
	8H	13.16	13.58	14.21	14.63	16.03	8.95	9.36	10.00	10.41	11.81
	12H	13.26	13.63	14.32	14.69	16.10	9.02	9.39	10.08	10.45	11.86
8H	4H	12.44	12.85	13.49	13.90	15.30	8.68	9.09	9.73	10.14	11.54
	6H	13.01	13.35	14.08	14.44	15.84	9.20	9.54	10.27	10.63	12.03
	8H	13.22	13.52	14.30	14.60	16.01	9.39	9.69	10.47	10.77	12.18
	12H	13.36	13.62	14.44	14.69	16.15	9.51	9.78	10.59	10.85	12.30
12H	4H	12.39	12.76	13.46	13.83	15.23	8.68	9.06	9.75	10.12	11.53
	6H	12.98	13.28	14.06	14.36	15.77	9.25	9.55	10.33	10.63	12.04
	8H	13.20	13.46	14.28	14.54	15.99	9.46	9.72	10.54	10.79	12.25

END OF REPORT