

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: P927145

Luminaire Tested: DFN2DIP-HX4F0-110D090US830-RLLFLL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P927145
REPORT IS A COMBINATION OF REPORTS P899404 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-110D090US830-RLLFLL
Description: 4 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

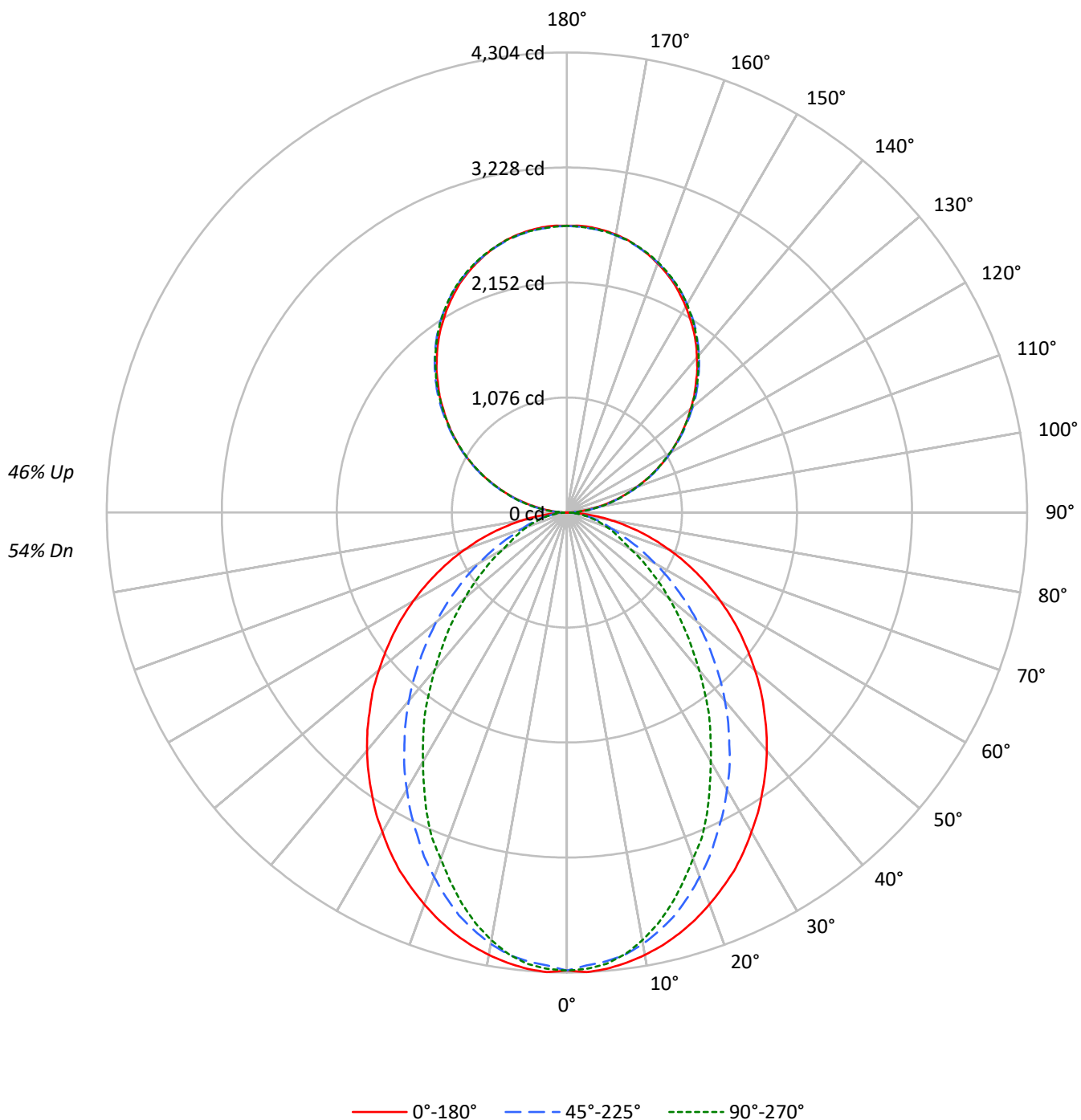
Lumens per Lamp: N/A
Luminaire Lumens: 16319.4 lumens
Efficiency: N/A
Efficacy: 90.6 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 180.2
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	108	108	108	108		100	100	100	100		86	86	86		72	72	72		60	60	60
1	99	95	91	88		92	88	85	82		76	73	71		64	63	61		54	53	52
2	91	84	78	73		84	78	73	68		67	63	60		57	54	52		48	46	44
3	83	74	67	61		77	69	63	58		60	55	51		51	47	45		43	40	38
4	76	66	58	52		71	62	55	49		53	48	44		46	42	39		39	36	33
5	70	59	51	45		65	55	48	43		48	42	38		41	37	34		35	32	29
6	65	53	45	39		60	50	43	38		43	38	34		38	33	30		32	29	26
7	60	48	40	35		56	45	38	33		40	34	30		34	30	27		29	26	23
8	56	44	36	31		52	41	34	30		36	31	27		32	27	24		27	24	21
9	52	40	33	28		49	38	31	27		33	28	24		29	25	22		25	22	19
10	49	37	30	25		45	35	28	24		31	26	22		27	23	20		23	20	18

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3186	3186	3186
5°	3191	3136	3156
10°	3160	3075	3053
15°	3117	2973	2895
20°	3060	2834	2700
25°	3001	2677	2512
30°	2922	2516	2273
35°	2845	2343	2064
40°	2766	2164	1824
45°	2675	1966	1606
50°	2580	1765	1393
55°	2482	1551	1189
60°	2368	1327	979
65°	2237	1099	881
70°	2078	887	798
75°	1878	782	726
80°	1589	657	630
85°	1111	440	475

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2675 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	401.6	2.5
10°-20°	1102.4	6.8
20°-30°	1547.8	9.5
30°-40°	1687.2	10.3
40°-50°	1550.7	9.5
50°-60°	1217.8	7.5
60°-70°	792.7	4.9
70°-80°	408.0	2.5
80°-90°	111.8	0.7
90°-100°	166.0	1.0
100°-110°	527.5	3.2
110°-120°	902.7	5.5
120°-130°	1187.1	7.3
130°-140°	1332.5	8.2
140°-150°	1306.6	8.0
150°-160°	1096.1	6.7
160°-170°	726.9	4.5
170°-180°	254.1	1.6
0°-30°	3051.8	18.7
0°-40°	4738.9	29.0
0°-60°	7507.5	46.0
0°-90°	8820.0	54.0
90°-120°	1596.1	9.8
90°-150°	5422.3	33.2
90°-180°	7499.0	46.0
0°-180°	16319.4	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4285	4285	4285	4285	4285	
5°	4285	4266	4215	4250	4238	406
15°	4076	4033	3901	3827	3789	1148
25°	3699	3575	3319	3160	3102	1701
35°	3188	2990	2649	2404	2319	1995
45°	2606	2346	1939	1663	1570	2012
55°	1981	1679	1260	1028	954	1771
65°	1338	1024	675	543	531	1326
75°	713	442	310	283	279	755
85°	167	85	74	74	74	191
90°	2	29	79	74	77	16
95°	118	141	145	145	141	131
105°	487	493	498	502	502	514
115°	906	919	915	912	906	896
125°	1318	1338	1331	1324	1322	1177
135°	1704	1729	1734	1732	1725	1317
145°	2069	2085	2098	2100	2092	1293
155°	2366	2372	2379	2391	2384	1089
165°	2574	2571	2571	2587	2576	726
175°	2678	2671	2666	2683	2669	254
180°	2683	2683	2683	2683	2683	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	4284.9	4284.9	4284.9	4284.9	4284.9
2.5°	4304.2	4284.9	4242.1	4281.2	4273.4
5°	4284.9	4265.6	4215.0	4249.9	4238.4
7.5°	4249.9	4226.8	4172.5	4187.8	4168.4
10°	4203.5	4176.2	4098.9	4087.0	4064.0
12.5°	4145.4	4110.4	4005.5	3982.4	3939.6
15°	4075.5	4032.7	3901.0	3827.4	3788.7
17.5°	3994.0	3931.9	3769.0	3683.8	3621.7
20°	3901.0	3823.3	3629.5	3532.8	3447.2
22.5°	3800.3	3710.9	3485.9	3354.3	3296.2
25°	3699.4	3575.2	3319.3	3160.5	3102.1
27.5°	3579.3	3447.2	3164.2	2981.9	2892.6
30°	3451.3	3303.7	2993.5	2795.9	2691.0
32.5°	3327.1	3148.5	2830.9	2598.1	2501.0
35°	3187.6	2989.7	2648.7	2404.3	2318.7
37.5°	3051.9	2838.3	2477.9	2210.1	2113.5
40°	2908.3	2675.9	2299.4	2024.1	1923.4
42.5°	2761.0	2512.9	2121.3	1834.1	1737.4
45°	2605.9	2345.9	1939.0	1663.3	1570.4
47.5°	2458.6	2183.4	1764.5	1488.9	1403.8
50°	2295.6	2020.4	1593.9	1326.0	1244.9
52.5°	2136.5	1845.6	1430.9	1175.0	1101.3
55°	1981.3	1679.0	1260.1	1027.7	954.1
57.5°	1822.6	1512.3	1109.1	892.0	829.8
60°	1659.6	1349.5	949.9	752.5	690.4
62.5°	1500.8	1190.7	814.2	628.3	597.4
65°	1337.9	1023.6	674.7	543.1	531.1
67.5°	1182.8	868.5	543.1	476.8	465.3
70°	1019.9	717.5	449.7	411.0	395.4
72.5°	864.7	577.7	376.1	345.1	337.3
75°	713.4	441.8	310.2	283.0	279.4
77.5°	562.4	313.9	244.4	228.7	220.9
80°	422.5	225.1	186.0	170.8	170.8
82.5°	294.5	151.4	128.0	120.2	120.2
85°	166.6	85.2	73.6	73.6	73.6
87.5°	62.1	30.8	30.8	27.1	27.1
90°	2.5	29.1	79.3	74.4	76.8
92.5°	50.1	68.0	70.4	72.8	72.8
95°	118.1	140.7	144.8	144.8	140.7
97.5°	196.5	217.5	226.5	226.5	226.5
100°	287.1	305.7	312.2	312.2	309.8
102.5°	382.6	396.3	405.2	407.6	405.2
105°	486.9	493.3	498.2	502.3	502.3
107.5°	590.4	600.1	600.1	601.7	590.4
110°	690.7	703.7	703.7	703.7	697.2

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	799.1	812.8	810.4	804.0	799.1
115°	905.8	918.7	914.7	912.3	905.8
117.5°	1011.8	1029.6	1018.3	1011.8	1005.3
120°	1118.6	1136.3	1118.6	1118.6	1111.2
122.5°	1215.5	1238.3	1226.9	1220.4	1215.5
125°	1317.5	1337.7	1331.3	1323.9	1321.6
127.5°	1417.0	1442.0	1433.2	1423.5	1417.0
130°	1510.0	1539.1	1535.0	1530.1	1521.3
132.5°	1614.3	1636.9	1638.5	1627.2	1620.8
135°	1704.0	1729.1	1734.0	1731.6	1725.2
137.5°	1804.3	1824.6	1828.6	1827.0	1817.3
140°	1892.5	1912.7	1924.0	1924.0	1915.2
142.5°	1983.1	2003.3	2009.8	2012.2	2003.3
145°	2068.9	2085.0	2097.9	2100.4	2091.5
147.5°	2145.7	2165.9	2175.6	2179.6	2170.8
150°	2225.0	2238.7	2247.6	2254.8	2247.6
152.5°	2295.3	2309.0	2320.3	2329.3	2320.3
155°	2365.7	2372.1	2379.4	2390.7	2383.5
157.5°	2426.3	2431.2	2435.2	2451.3	2440.0
160°	2480.5	2485.4	2487.8	2501.5	2491.8
162.5°	2530.6	2530.6	2533.1	2548.4	2537.1
165°	2573.5	2571.0	2571.0	2587.3	2575.9
167.5°	2612.3	2605.1	2605.1	2621.2	2609.9
170°	2641.5	2634.9	2632.6	2648.7	2634.9
172.5°	2661.6	2655.2	2652.8	2669.0	2655.2
175°	2677.8	2671.3	2666.5	2682.7	2669.0
177.5°	2686.7	2680.3	2675.4	2689.1	2675.4
180°	2682.7	2682.7	2682.7	2682.7	2682.7

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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	11.54	12.41	12.47	13.35	14.56	7.52	8.38	8.44	9.32	10.54
	3H	13.22	14.00	14.16	14.95	16.19	8.71	9.48	9.65	10.43	11.67
	4H	13.83	14.56	14.79	15.52	16.77	9.16	9.89	10.12	10.85	12.10
	6H	14.26	14.93	15.22	15.89	17.15	9.49	10.16	10.45	11.12	12.38
	8H	14.39	15.03	15.36	16.00	17.26	9.58	10.22	10.55	11.20	12.45
	12H	14.45	15.06	15.43	16.03	17.31	9.62	10.23	10.60	11.20	12.49
4H	2H	11.57	12.30	12.53	13.25	14.50	8.12	8.85	9.08	9.80	11.05
	3H	13.40	14.01	14.37	14.99	16.25	9.47	10.08	10.44	11.06	12.33
	4H	14.09	14.65	15.07	15.63	16.91	10.02	10.58	11.00	11.56	12.84
	6H	14.61	15.09	15.60	16.09	17.38	10.45	10.92	11.44	11.92	13.21
	8H	14.79	15.23	15.78	16.23	17.53	10.58	11.02	11.57	12.02	13.32
	12H	14.88	15.29	15.90	16.30	17.60	10.64	11.04	11.65	12.06	13.36
8H	4H	14.06	14.51	15.06	15.50	16.80	10.31	10.75	11.30	11.75	13.04
	6H	14.63	15.00	15.65	16.04	17.33	10.83	11.19	11.84	12.23	13.53
	8H	14.85	15.17	15.88	16.20	17.51	11.02	11.34	12.05	12.37	13.68
	12H	14.99	15.28	16.02	16.29	17.66	11.14	11.43	12.17	12.45	13.81
12H	4H	14.02	14.42	15.03	15.43	16.73	10.31	10.71	11.32	11.73	13.03
	6H	14.61	14.93	15.63	15.96	17.27	10.88	11.20	11.90	12.23	13.54
	8H	14.83	15.12	15.86	16.13	17.50	11.09	11.38	12.12	12.39	13.76

END OF REPORT