

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: P927154

Luminaire Tested: DFN2DIP-HX4F0-110D110US830-RLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P927154
REPORT IS A COMBINATION OF REPORTS P900960 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-110D110US830-RLONL
Description: 4 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

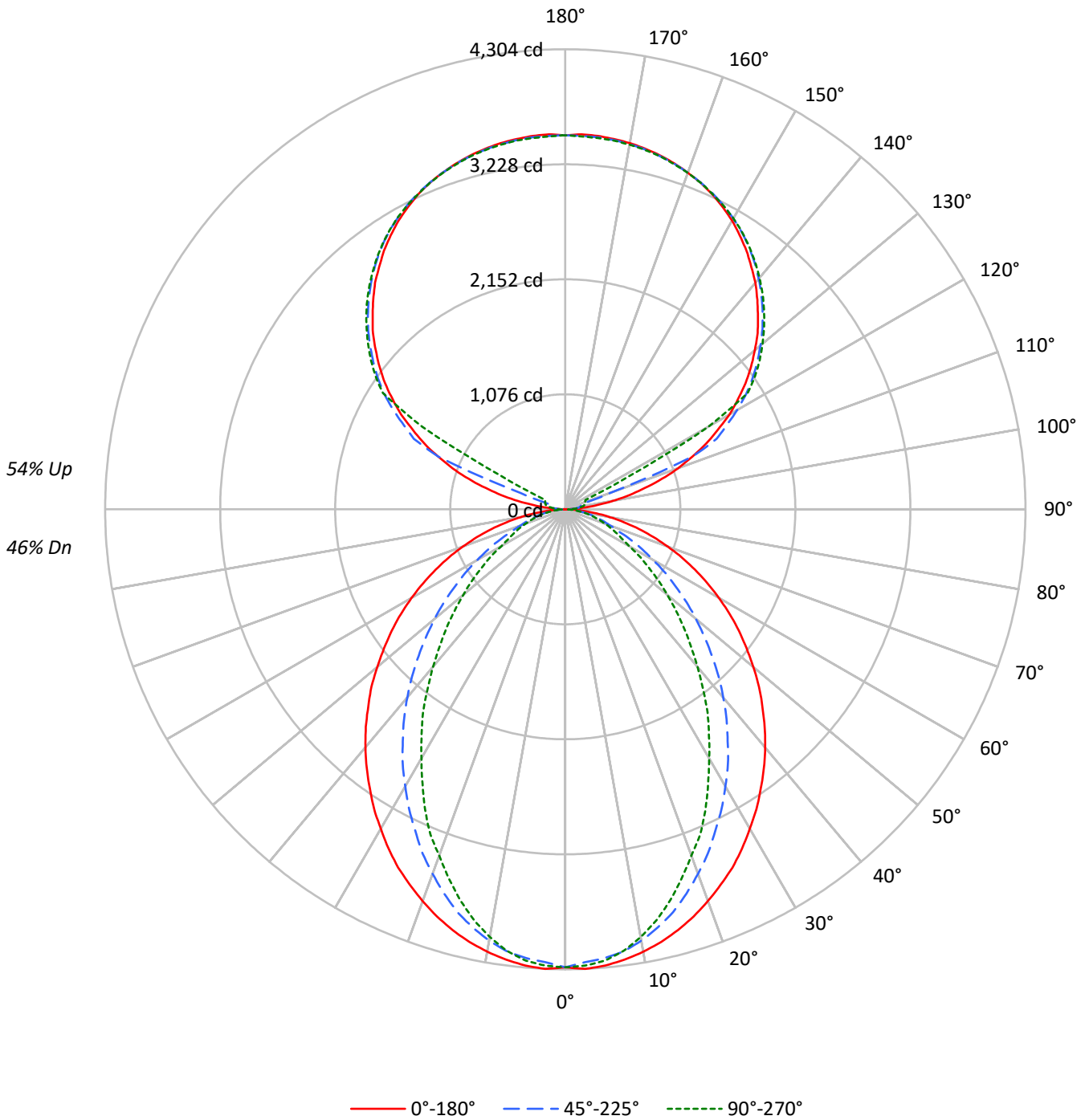
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 19076.2 lumens
Efficiency: N/A
Efficacy: 95.6 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): 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			0	
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	0
RCR																					
0	106	106	106	106	98	98	98	98	81	81	81	66	66	66	53	53	53	46			46
1	97	93	90	86	89	86	83	80	72	70	68	59	58	56	47	46	45	40			40
2	89	82	76	71	82	76	70	66	63	60	57	52	50	48	42	40	39	34			34
3	81	72	65	60	75	67	61	56	56	52	48	47	43	41	38	35	34	29			29
4	75	64	57	51	68	60	53	48	50	45	41	42	38	35	34	31	29	26			26
5	69	58	50	44	63	53	46	41	45	40	36	38	34	31	31	28	26	23			23
6	63	52	44	38	58	48	41	36	41	36	32	34	30	27	28	25	23	20			20
7	59	47	39	34	54	44	37	32	37	32	28	31	27	24	26	23	21	18			18
8	55	43	35	30	50	40	33	28	34	29	25	29	25	22	24	21	19	16			16
9	51	39	32	27	47	36	30	25	31	26	22	27	23	20	22	19	17	15			15
10	48	36	29	24	44	33	27	23	29	24	20	25	21	18	20	18	15	13			13

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	2.1
10°-20°	1102.4	5.8
20°-30°	1547.8	8.1
30°-40°	1687.2	8.8
40°-50°	1550.7	8.1
50°-60°	1217.8	6.4
60°-70°	792.7	4.2
70°-80°	408.0	2.1
80°-90°	110.3	0.6
90°-100°	115.4	0.6
100°-110°	430.1	2.3
110°-120°	1140.7	6.0
120°-130°	1891.9	9.9
130°-140°	2009.6	10.5
140°-150°	1867.7	9.8
150°-160°	1501.6	7.9
160°-170°	967.6	5.1
170°-180°	333.0	1.7
0°-30°	3051.8	16.0
0°-40°	4738.9	24.8
0°-60°	7507.5	39.4
0°-90°	8818.5	46.2
90°-120°	1686.2	8.8
90°-150°	7455.4	39.1
90°-180°	10258.0	53.8
0°-180°	19076.2	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	30	50	63	68	18
95°	164	81	99	112	109	195
105°	770	846	155	182	192	822
115°	1456	1499	1562	390	208	1433
125°	2058	2091	2139	2157	2165	1836
135°	2547	2588	2610	2636	2631	1968
145°	2955	2952	2995	3013	3000	1848
155°	3253	3231	3261	3276	3256	1499
165°	3428	3413	3420	3438	3420	968
175°	3506	3489	3494	3512	3486	334
180°	3499	3499	3499	3499	3499	



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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	30.3	50.5	63.4	68.2
92.5°	63.4	53.3	60.7	65.9	68.2
95°	164.5	80.9	98.6	111.5	108.9
97.5°	296.1	88.7	128.9	136.8	139.2
100°	448.3	101.3	144.3	164.5	169.6
102.5°	615.1	610.3	149.4	177.1	184.9
105°	769.6	845.7	154.6	182.2	192.5
107.5°	949.5	1012.5	159.7	187.3	197.5
110°	1121.7	1174.6	443.2	190.0	199.9



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1283.8	1329.1	1286.1	194.8	202.6
115°	1455.7	1498.7	1562.2	389.9	207.7
117.5°	1605.2	1655.7	1699.0	1336.7	673.4
120°	1772.3	1810.2	1855.9	1886.2	1544.4
122.5°	1913.9	1954.5	2005.3	2020.3	2023.1
125°	2058.2	2091.3	2139.4	2157.1	2164.6
127.5°	2189.9	2225.3	2263.5	2288.8	2291.2
130°	2314.0	2354.6	2382.3	2410.3	2407.9
132.5°	2440.6	2473.7	2501.4	2524.2	2521.8
135°	2547.1	2587.6	2610.2	2635.8	2630.6
137.5°	2658.3	2688.7	2714.2	2739.5	2731.9
140°	2767.2	2787.5	2815.2	2838.1	2825.4
142.5°	2858.5	2876.2	2909.0	2929.2	2916.6
145°	2954.7	2952.0	2995.0	3012.8	3000.2
147.5°	3038.1	3030.5	3073.5	3086.1	3076.2
150°	3119.2	3101.5	3142.0	3157.1	3144.5
152.5°	3187.4	3167.3	3205.2	3220.5	3202.8
155°	3253.3	3230.7	3261.0	3276.1	3256.0
157.5°	3306.5	3286.3	3309.2	3326.9	3306.5
160°	3352.2	3336.8	3352.2	3367.2	3349.5
162.5°	3392.4	3377.4	3390.1	3407.8	3385.0
165°	3428.0	3412.9	3420.4	3438.1	3420.4
167.5°	3455.9	3440.6	3448.4	3466.1	3443.3
170°	3478.8	3463.4	3468.5	3486.3	3463.4
172.5°	3493.8	3478.8	3483.9	3501.6	3478.8
175°	3506.4	3488.7	3493.8	3511.6	3486.3
177.5°	3511.6	3493.8	3496.5	3514.2	3491.4
180°	3498.9	3498.9	3498.9	3498.9	3498.9



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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	10.81	11.61	11.81	12.61	13.94	6.78	7.58	7.78	8.59	9.91
	3H	12.49	13.20	13.49	14.21	15.56	7.97	8.69	8.98	9.70	11.05
	4H	13.09	13.77	14.11	14.79	16.14	8.42	9.10	9.44	10.11	11.47
	6H	13.52	14.14	14.54	15.16	16.53	8.74	9.37	9.77	10.39	11.75
	8H	13.64	14.23	14.68	15.27	16.63	8.83	9.43	9.87	10.46	11.83
	12H	13.70	14.27	14.74	15.29	16.68	8.88	9.44	9.92	10.47	11.86
4H	2H	10.83	11.50	11.85	12.52	13.87	7.38	8.05	8.40	9.07	10.42
	3H	12.65	13.22	13.69	14.26	15.63	8.73	9.29	9.76	10.33	11.70
	4H	13.35	13.86	14.39	14.89	16.29	9.27	9.79	10.31	10.82	12.22
	6H	13.86	14.30	14.91	15.36	16.75	9.69	10.14	10.74	11.19	12.58
	8H	14.03	14.45	15.09	15.50	16.90	9.82	10.24	10.87	11.29	12.69
	12H	14.13	14.50	15.20	15.57	16.97	9.89	10.26	10.96	11.33	12.73
8H	4H	13.31	13.72	14.36	14.77	16.18	9.55	9.96	10.60	11.02	12.42
	6H	13.88	14.22	14.95	15.31	16.71	10.07	10.41	11.15	11.51	12.91
	8H	14.09	14.39	15.18	15.47	16.89	10.26	10.56	11.35	11.64	13.06
	12H	14.23	14.50	15.32	15.57	17.03	10.38	10.65	11.47	11.72	13.18
12H	4H	13.26	13.63	14.33	14.70	16.11	9.56	9.93	10.62	10.99	12.40
	6H	13.85	14.15	14.93	15.23	16.65	10.12	10.42	11.20	11.50	12.92
	8H	14.07	14.34	15.16	15.41	16.87	10.33	10.60	11.42	11.67	13.13