

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: P927046

Luminaire Tested: DFN2DIP-HX4F0-080D110US830-RLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P927046
REPORT IS A COMBINATION OF REPORTS P900954 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-080D110US830-RLONL
Description: 4 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

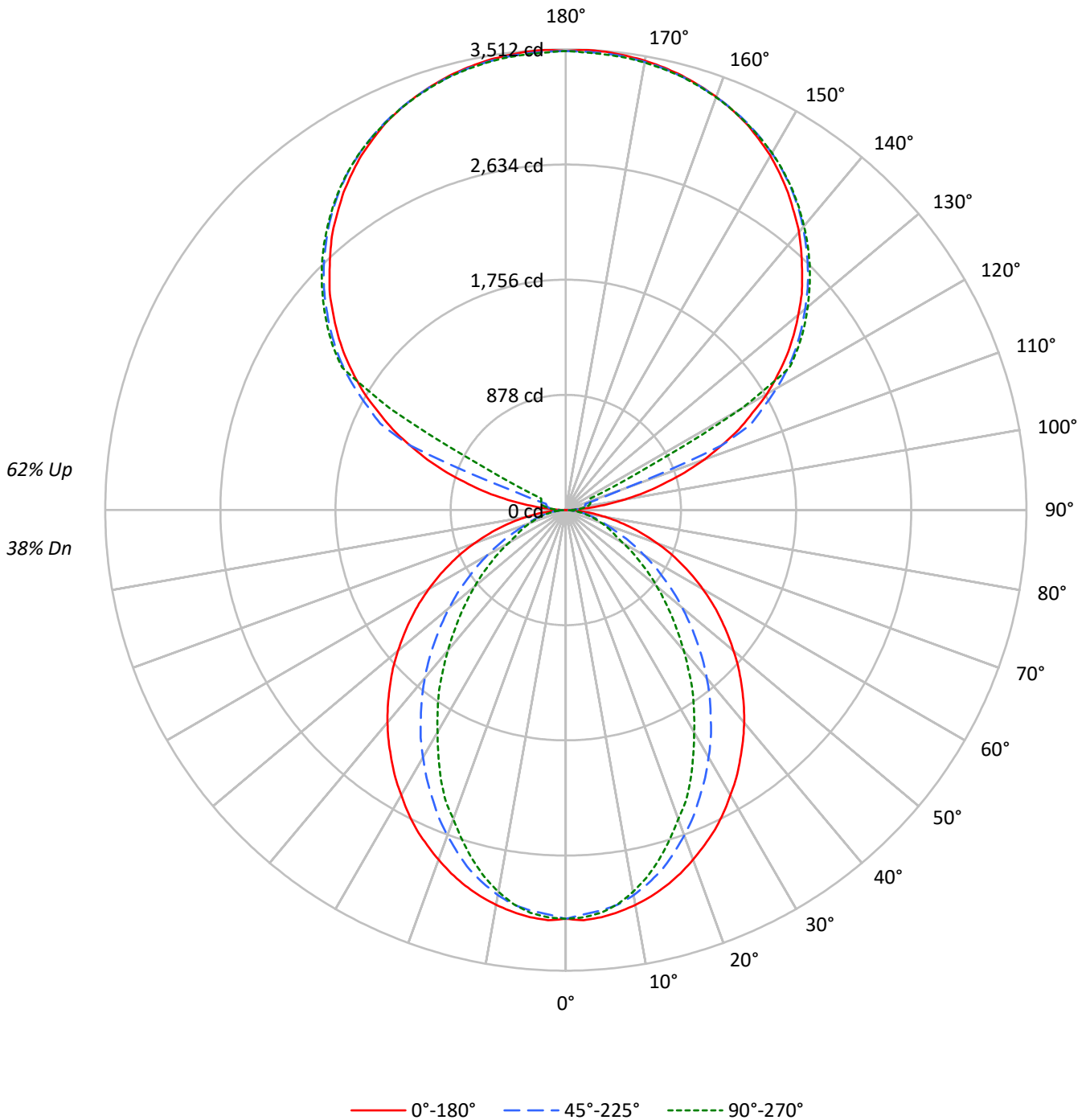
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 16672.8 lumens
Efficiency: N/A
Efficacy: 101.7 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: Semi-Indirect

Input Watts (W): 163.9
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9613
Total Harmonic Distortion (THDi): 0.083
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				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	104	104	104	104	95	95	95	95	77	77	77	61	61	61	46	46	46	38				38
1	96	91	88	84	87	83	80	77	68	66	64	54	52	51	41	40	39	33				33
2	87	80	74	70	79	73	68	64	60	56	53	48	45	43	36	35	34	28				28
3	80	71	64	58	72	65	59	54	53	49	45	42	39	37	33	31	29	24				24
4	73	63	55	50	66	58	51	46	47	43	39	38	35	32	29	27	25	21				21
5	67	56	48	43	61	51	45	40	43	38	34	34	31	28	27	24	22	19				19
6	62	50	43	37	56	46	39	35	38	33	30	31	27	25	24	22	20	17				17
7	57	46	38	33	52	42	35	30	35	30	26	28	25	22	22	20	18	15				15
8	53	41	34	29	48	38	32	27	32	27	23	26	22	20	20	18	16	13				13
9	50	38	31	26	45	35	28	24	29	24	21	24	20	18	19	16	14	12				12
10	46	35	28	23	42	32	26	22	27	22	19	22	19	16	18	15	13	11				11

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2317	2317	2317
5°	2321	2281	2295
10°	2298	2236	2221
15°	2267	2162	2105
20°	2225	2061	1964
25°	2182	1947	1827
30°	2125	1830	1653
35°	2069	1704	1501
40°	2012	1574	1326
45°	1945	1430	1168
50°	1877	1284	1013
55°	1805	1128	865
60°	1722	965	712
65°	1627	799	641
70°	1511	645	580
75°	1366	569	528
80°	1156	478	458
85°	808	320	345

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 1945 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	292.1	1.8
10°-20°	801.8	4.8
20°-30°	1125.7	6.8
30°-40°	1227.0	7.4
40°-50°	1127.8	6.8
50°-60°	885.7	5.3
60°-70°	576.5	3.5
70°-80°	296.8	1.8
80°-90°	81.9	0.5
90°-100°	115.4	0.7
100°-110°	430.1	2.6
110°-120°	1140.7	6.8
120°-130°	1891.9	11.3
130°-140°	2009.6	12.1
140°-150°	1867.7	11.2
150°-160°	1501.6	9.0
160°-170°	967.6	5.8
170°-180°	333.0	2.0
0°-30°	2219.5	13.3
0°-40°	3446.5	20.7
0°-60°	5460.0	32.7
0°-90°	6415.2	38.5
90°-120°	1686.2	10.1
90°-150°	7455.4	44.7
90°-180°	10258.0	61.5
0°-180°	16672.8	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3116	3116	3116	3116	3116	
5°	3116	3102	3065	3091	3082	295
15°	2964	2933	2837	2784	2755	835
25°	2690	2600	2414	2299	2256	1237
35°	2318	2174	1926	1749	1686	1451
45°	1895	1706	1410	1210	1142	1464
55°	1441	1221	916	747	694	1288
65°	973	744	491	395	386	965
75°	519	321	226	206	203	549
85°	121	62	54	54	54	139
90°	2	30	50	63	68	16
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°	3116.3	3116.3	3116.3	3116.3	3116.3
2.5°	3130.3	3116.3	3085.2	3113.5	3107.9
5°	3116.3	3102.2	3065.4	3090.8	3082.4
7.5°	3090.8	3074.1	3034.6	3045.7	3031.6
10°	3057.0	3037.3	2981.0	2972.4	2955.6
12.5°	3014.9	2989.4	2913.1	2896.3	2865.2
15°	2964.0	2932.9	2837.1	2783.6	2755.4
17.5°	2904.7	2859.5	2741.1	2679.2	2633.9
20°	2837.1	2780.6	2639.7	2569.3	2507.0
22.5°	2763.8	2698.8	2535.2	2439.5	2397.2
25°	2690.5	2600.2	2414.0	2298.6	2256.1
27.5°	2603.1	2507.0	2301.2	2168.7	2103.8
30°	2510.1	2402.6	2177.1	2033.4	1957.1
32.5°	2419.7	2289.9	2058.9	1889.5	1818.9
35°	2318.3	2174.3	1926.3	1748.6	1686.3
37.5°	2219.5	2064.3	1802.2	1607.3	1537.0
40°	2115.2	1946.1	1672.3	1472.1	1398.8
42.5°	2008.0	1827.6	1542.7	1333.9	1263.5
45°	1895.2	1706.1	1410.2	1209.7	1142.1
47.5°	1788.1	1587.9	1283.3	1082.8	1020.9
50°	1669.5	1469.5	1159.2	964.4	905.4
52.5°	1553.8	1342.2	1040.6	854.6	801.0
55°	1441.0	1221.1	916.5	747.4	693.9
57.5°	1325.5	1099.9	806.7	648.7	603.5
60°	1207.0	981.4	690.9	547.2	502.1
62.5°	1091.5	865.9	592.2	456.9	434.5
65°	973.0	744.4	490.7	395.0	386.2
67.5°	860.2	631.7	395.0	346.7	338.5
70°	741.7	521.9	327.0	298.9	287.6
72.5°	628.9	420.1	273.5	251.1	245.3
75°	518.8	321.4	225.6	205.8	203.2
77.5°	409.0	228.3	177.8	166.4	160.7
80°	307.3	163.7	135.2	124.1	124.1
82.5°	214.2	110.1	93.0	87.4	87.4
85°	121.2	61.9	53.5	53.5	53.5
87.5°	45.1	22.4	22.4	19.8	19.8
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	8.89	9.63	9.94	10.69	12.12	4.86	5.60	5.92	6.66	8.09
	3H	10.56	11.22	11.62	12.29	13.74	6.04	6.71	7.11	7.77	9.22
	4H	11.16	11.79	12.24	12.86	14.32	6.49	7.12	7.57	8.19	9.64
	6H	11.58	12.16	12.67	13.23	14.70	6.81	7.39	7.90	8.46	9.93
	8H	11.71	12.26	12.80	13.34	14.80	6.90	7.45	7.99	8.54	10.00
	12H	11.77	12.29	12.86	13.37	14.85	6.94	7.46	8.04	8.54	10.03
4H	2H	8.90	9.53	9.98	10.59	12.05	5.45	6.08	6.53	7.14	8.60
	3H	10.72	11.24	11.81	12.34	13.80	6.79	7.31	7.88	8.41	9.88
	4H	11.41	11.89	12.50	12.97	14.46	7.34	7.82	8.43	8.90	10.39
	6H	11.92	12.33	13.02	13.44	14.92	7.75	8.16	8.86	9.27	10.75
	8H	12.09	12.48	13.20	13.58	15.07	7.88	8.27	8.98	9.36	10.86
	12H	12.18	12.53	13.30	13.64	15.15	7.94	8.29	9.06	9.40	10.90
8H	4H	11.37	11.75	12.47	12.85	14.35	7.61	7.99	8.71	9.09	10.59
	6H	11.93	12.25	13.06	13.39	14.89	8.13	8.44	9.25	9.59	11.08
	8H	12.15	12.43	13.28	13.55	15.06	8.32	8.60	9.45	9.72	11.23
	12H	12.29	12.53	13.42	13.65	15.20	8.44	8.68	9.57	9.80	11.35
12H	4H	11.32	11.67	12.44	12.78	14.28	7.61	7.96	8.73	9.07	10.57
	6H	11.91	12.19	13.04	13.31	14.82	8.18	8.45	9.31	9.58	11.09
	8H	12.13	12.37	13.26	13.49	15.04	8.39	8.63	9.52	9.75	11.30