

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: P927082

Luminaire Tested: DFN2DIP-HX4F0-090D110US830-RLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P927082
REPORT IS A COMBINATION OF REPORTS P900956 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-090D110US830-RLONL
Description: 4 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

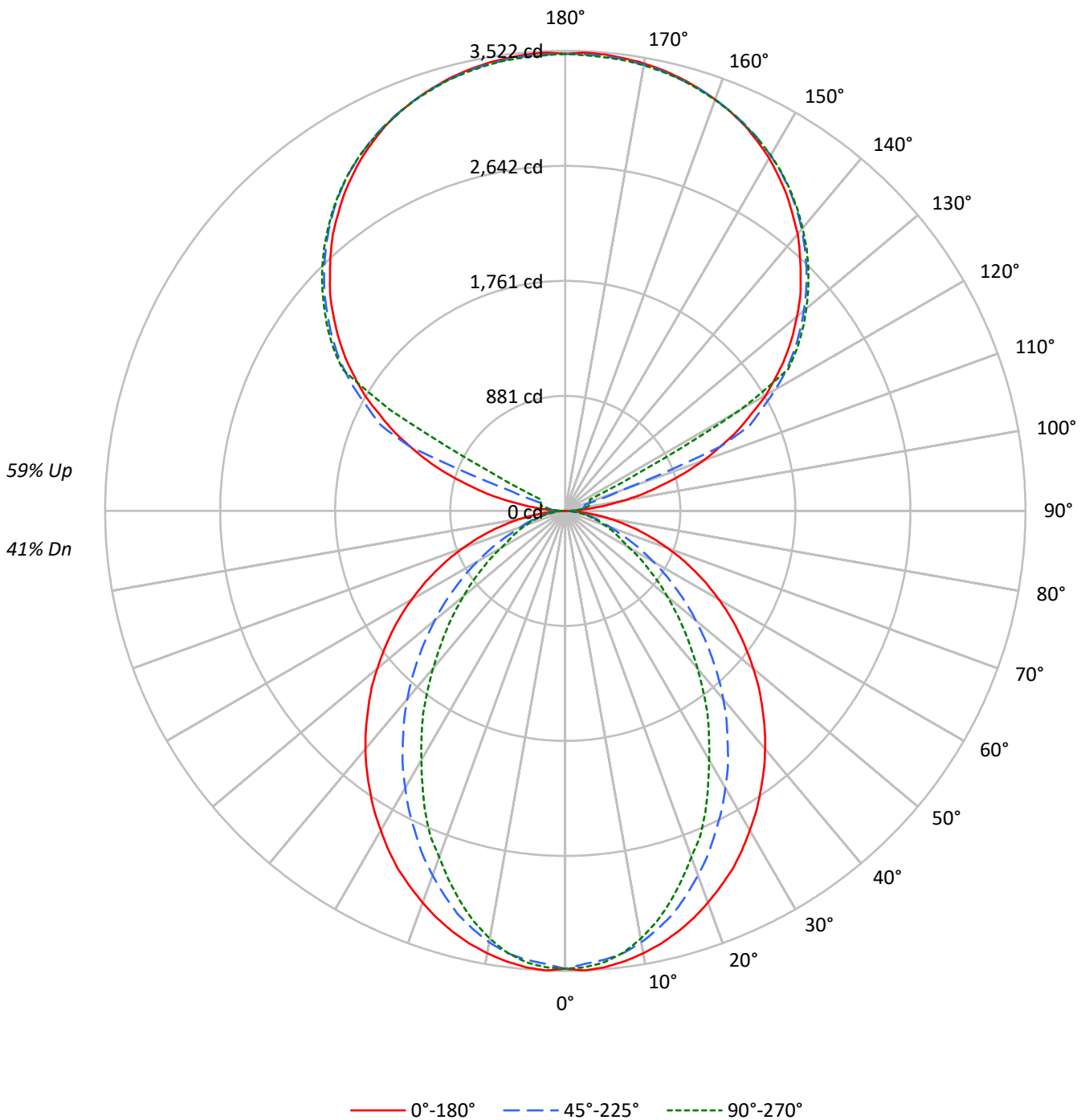
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 17474.0 lumens
Efficiency: N/A
Efficacy: 99.3 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): 175.9
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

TEST NUMBER: P927082
CATALOG NUMBER: DFN2DIP-HX4F0-090D110US830-RLLONL

Luminous Intensity Polar Plot





TEST NUMBER: P927082

CATALOG NUMBER: DFN2DIP-HX4F0-090D110US830-RLLONL

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	105	105	105	105	96	96	96	96	78	78	78	63	63	63	48	48	48	48	48	48	41
1	96	92	88	85	88	84	81	78	69	67	65	56	54	53	43	42	41	41	41	41	36
2	88	81	75	70	80	74	69	65	61	58	55	49	47	45	38	37	35	35	35	35	30
3	80	71	64	59	73	65	59	55	54	50	46	44	41	38	34	32	31	31	31	31	26
4	74	63	56	50	67	58	52	47	48	44	40	39	36	33	31	29	27	27	27	27	23
5	68	57	49	43	62	52	45	40	44	38	35	36	32	29	28	26	24	24	24	24	20
6	63	51	43	38	57	47	40	35	39	34	30	32	28	26	26	23	21	21	21	21	18
7	58	46	38	33	53	42	36	31	36	31	27	29	26	23	24	21	19	19	19	19	16
8	54	42	34	29	49	39	32	27	33	28	24	27	23	20	22	19	17	17	17	17	14
9	50	38	31	26	46	35	29	25	30	25	21	25	21	18	20	17	15	15	15	15	13
10	47	35	28	23	43	33	26	22	28	23	19	23	19	17	19	16	14	14	14	14	12

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2607	2607	2607
5°	2611	2566	2582
10°	2586	2516	2498
15°	2550	2433	2368
20°	2503	2318	2209
25°	2455	2190	2055
30°	2391	2059	1860
35°	2328	1917	1689
40°	2263	1771	1492
45°	2188	1608	1314
50°	2111	1444	1140
55°	2031	1269	973
60°	1937	1086	801
65°	1830	899	721
70°	1700	726	653
75°	1537	640	594
80°	1300	538	516
85°	909	360	388

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 2188 cd/sqm



TEST NUMBER: P927082

CATALOG NUMBER: DFN2DIP-HX4F0-090D110US830-RLLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	328.6	1.9
10°-20°	902.0	5.2
20°-30°	1266.4	7.2
30°-40°	1380.4	7.9
40°-50°	1268.7	7.3
50°-60°	996.4	5.7
60°-70°	648.6	3.7
70°-80°	333.9	1.9
80°-90°	91.4	0.5
90°-100°	115.4	0.7
100°-110°	430.1	2.5
110°-120°	1140.7	6.5
120°-130°	1891.9	10.8
130°-140°	2009.6	11.5
140°-150°	1867.7	10.7
150°-160°	1501.6	8.6
160°-170°	967.6	5.5
170°-180°	333.0	1.9
0°-30°	2496.9	14.3
0°-40°	3877.3	22.2
0°-60°	6142.5	35.2
0°-90°	7216.3	41.3
90°-120°	1686.2	9.6
90°-150°	7455.4	42.7
90°-180°	10258.0	58.7
0°-180°	17474.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3506	3506	3506	3506	3506	
5°	3506	3490	3449	3477	3468	332
15°	3334	3300	3192	3132	3100	940
25°	3027	2925	2716	2586	2538	1392
35°	2608	2446	2167	1967	1897	1632
45°	2132	1919	1586	1361	1285	1647
55°	1621	1374	1031	841	781	1449
65°	1095	838	552	444	435	1085
75°	584	362	254	232	229	617
85°	136	70	60	60	60	156
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	



TEST NUMBER: P927082

CATALOG NUMBER: DFN2DIP-HX4F0-090D110US830-RLONL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3505.8	3505.8	3505.8	3505.8	3505.8
2.5°	3521.7	3505.8	3470.8	3502.8	3496.4
5°	3505.8	3490.0	3448.6	3477.2	3467.7
7.5°	3477.2	3458.3	3413.9	3426.4	3410.5
10°	3439.2	3416.9	3353.7	3343.9	3325.0
12.5°	3391.7	3363.1	3277.3	3258.4	3223.4
15°	3334.5	3299.5	3191.8	3131.5	3099.9
17.5°	3267.8	3217.0	3083.7	3014.0	2963.2
20°	3191.8	3128.2	2969.5	2890.5	2820.4
22.5°	3109.3	3036.3	2852.1	2744.4	2697.0
25°	3026.8	2925.1	2715.8	2585.8	2538.1
27.5°	2928.5	2820.4	2588.9	2439.8	2366.7
30°	2823.8	2703.0	2449.2	2287.6	2201.8
32.5°	2722.1	2576.0	2316.2	2125.7	2046.3
35°	2608.1	2446.2	2167.1	1967.2	1897.2
37.5°	2497.0	2322.3	2027.4	1808.3	1729.2
40°	2379.5	2189.3	1881.3	1656.2	1573.7
42.5°	2259.0	2056.1	1735.5	1500.6	1421.5
45°	2132.1	1919.4	1586.4	1360.9	1284.8
47.5°	2011.6	1786.4	1443.7	1218.2	1148.5
50°	1878.3	1653.1	1304.0	1084.9	1018.6
52.5°	1748.1	1510.1	1170.8	961.4	901.1
55°	1621.1	1373.7	1031.0	840.9	780.6
57.5°	1491.2	1237.4	907.5	729.8	679.0
60°	1357.9	1104.0	777.3	615.6	564.8
62.5°	1228.0	974.2	666.2	514.0	488.8
65°	1094.6	837.5	552.0	444.3	434.6
67.5°	967.8	710.6	444.3	390.1	380.7
70°	834.5	587.1	368.0	336.3	323.5
72.5°	707.5	472.6	307.6	282.4	276.1
75°	583.7	361.5	253.8	231.6	228.6
77.5°	460.1	256.8	199.9	187.2	180.8
80°	345.7	184.2	152.1	139.7	139.7
82.5°	241.0	123.8	104.7	98.3	98.3
85°	136.3	69.7	60.2	60.2	60.2
87.5°	50.8	25.3	25.3	22.2	22.2
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



TEST NUMBER: P927082

CATALOG NUMBER: DFN2DIP-HX4F0-090D110US830-RLONL

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



TEST NUMBER: P927082
 CATALOG NUMBER: DFN2DIP-HX4F0-090D110US830-RLONL

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	9.61	10.37	10.64	11.41	12.80	5.58	6.34	6.61	7.38	8.77
	3H	11.28	11.96	12.32	13.01	14.42	6.77	7.45	7.81	8.49	9.91
	4H	11.89	12.53	12.94	13.58	15.00	7.21	7.86	8.27	8.91	10.33
	6H	12.31	12.90	13.37	13.95	15.38	7.53	8.13	8.60	9.18	10.61
	8H	12.43	13.00	13.50	14.06	15.49	7.62	8.19	8.69	9.26	10.68
	12H	12.49	13.03	13.56	14.09	15.54	7.67	8.20	8.74	9.26	10.71
4H	2H	9.62	10.26	10.68	11.31	12.73	6.17	6.81	7.23	7.86	9.28
	3H	11.44	11.98	12.51	13.06	14.49	7.51	8.05	8.58	9.13	10.56
	4H	12.13	12.62	13.21	13.69	15.15	8.06	8.55	9.14	9.62	11.07
	6H	12.64	13.07	13.73	14.16	15.61	8.48	8.90	9.56	9.99	11.44
	8H	12.82	13.21	13.90	14.30	15.76	8.61	9.00	9.69	10.08	11.55
	12H	12.91	13.27	14.01	14.36	15.83	8.67	9.03	9.77	10.12	11.59
8H	4H	12.10	12.49	13.18	13.57	15.04	8.34	8.73	9.42	9.81	11.28
	6H	12.66	12.99	13.77	14.11	15.57	8.85	9.18	9.96	10.30	11.76
	8H	12.88	13.16	13.99	14.27	15.75	9.05	9.33	10.16	10.44	11.92
	12H	13.01	13.26	14.13	14.37	15.89	9.16	9.42	10.28	10.52	12.04
12H	4H	12.04	12.40	13.15	13.50	14.96	8.34	8.69	9.44	9.79	11.26
	6H	12.64	12.92	13.75	14.03	15.51	8.90	9.19	10.02	10.30	11.78
	8H	12.85	13.10	13.97	14.21	15.73	9.11	9.36	10.23	10.47	11.99