

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: P928848

Luminaire Tested: DFN2DIP-HX4F0-040D120US935-FLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P928848
REPORT IS A COMBINATION OF REPORTS P900963 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-040D120US935-FLLONL
Description: 4 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

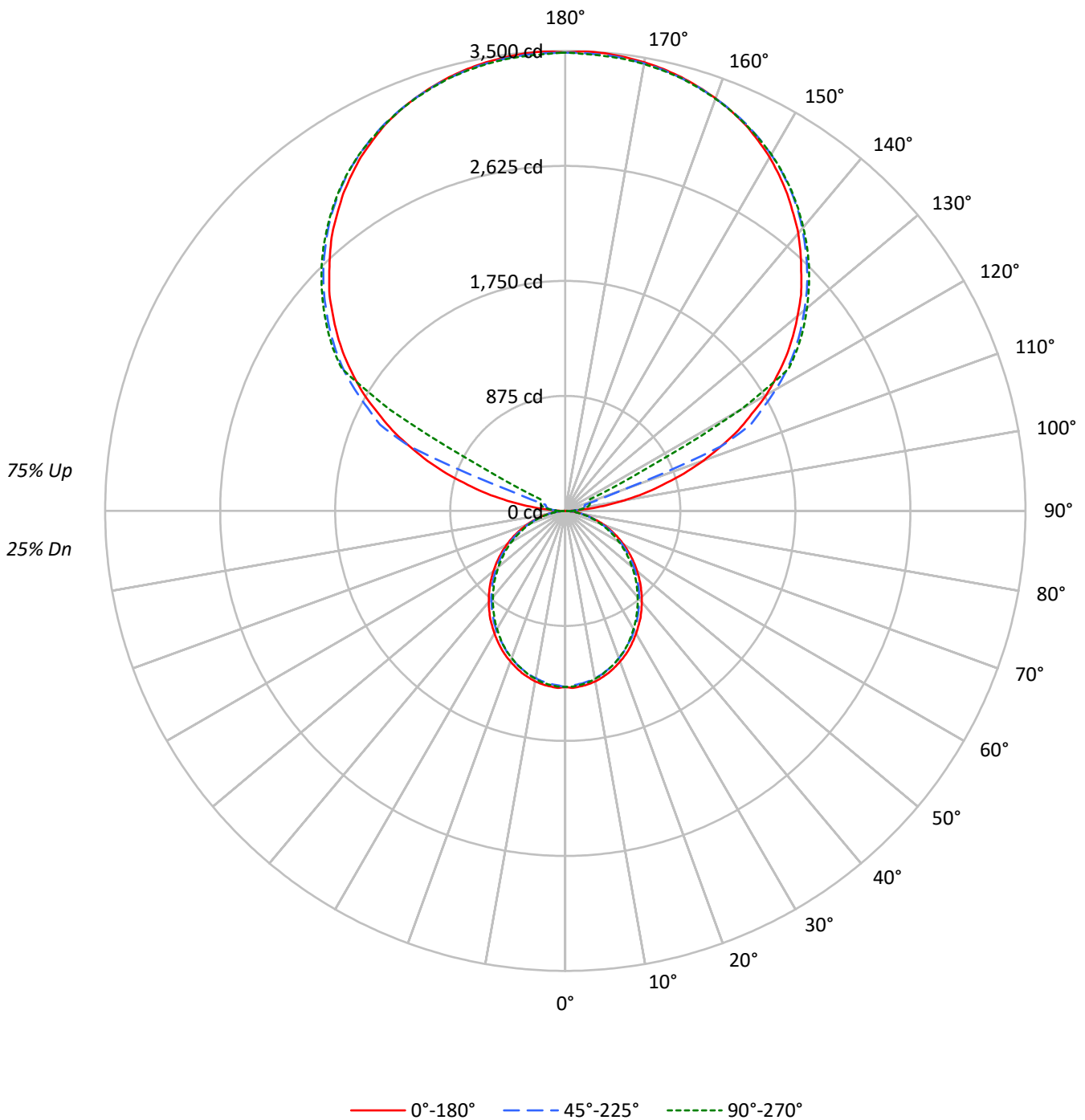
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 13638.2 lumens
Efficiency: N/A
Efficacy: 105.6 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 129.2
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9977
Total Harmonic Distortion (THDi): 0.049
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	101	101	101	101	90	90	90	90	69	69	69	51	51	51	33	33	33	21	21	21	21
1	92	88	84	81	82	79	75	73	61	59	57	44	43	42	29	29	28	18	18	18	18
2	84	77	71	66	74	69	64	59	53	50	47	39	37	35	26	25	24	15	15	15	15
3	76	67	60	55	68	60	54	50	47	43	39	34	32	30	23	21	20	11	11	11	11
4	70	60	52	46	62	53	47	42	42	37	33	31	28	25	20	19	17	9	9	9	9
5	64	53	45	39	57	47	41	36	37	32	29	27	24	22	18	16	15	7	7	7	7
6	59	47	40	34	52	42	36	31	33	28	25	25	21	19	17	15	13	5	5	5	5
7	54	43	35	30	48	38	32	27	30	25	22	22	19	17	15	13	12	4	4	4	4
8	50	38	31	26	45	35	28	24	27	23	19	20	17	15	14	12	10	3	3	3	3
9	47	35	28	23	41	31	25	21	25	20	17	19	15	13	13	11	9	2	2	2	2
10	43	32	25	20	39	29	23	19	23	18	15	17	14	12	12	10	8	1	1	1	1

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	996	996	996
5°	998	983	989
10°	990	970	976
15°	976	954	955
20°	956	932	934
25°	937	905	909
30°	912	881	877
35°	889	852	844
40°	860	822	813
45°	832	793	780
50°	801	762	743
55°	768	726	708
60°	732	684	669
65°	692	640	622
70°	640	587	572
75°	570	523	526
80°	485	442	438
85°	352	301	291

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°
 Vertical Angle: 90°
 Luminance: 1790 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	126.1	0.9
10°-20°	354.9	2.6
20°-30°	521.5	3.8
30°-40°	605.7	4.4
40°-50°	605.0	4.4
50°-60°	527.5	3.9
60°-70°	389.9	2.9
70°-80°	220.6	1.6
80°-90°	64.4	0.5
90°-100°	115.0	0.8
100°-110°	428.6	3.1
110°-120°	1136.8	8.3
120°-130°	1885.4	13.8
130°-140°	2002.8	14.7
140°-150°	1861.3	13.6
150°-160°	1496.5	11.0
160°-170°	964.3	7.1
170°-180°	331.9	2.4
0°-30°	1002.5	7.4
0°-40°	1608.3	11.8
0°-60°	2740.7	20.1
0°-90°	3415.7	25.0
90°-120°	1680.4	12.3
90°-150°	7429.9	54.5
90°-180°	10223.0	75.0
0°-180°	13638.2	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1340	1340	1340	1340	1340	
5°	1340	1335	1321	1331	1329	127
15°	1276	1268	1251	1256	1250	359
25°	1154	1144	1122	1125	1122	531
35°	996	983	963	955	948	622
45°	810	802	782	768	763	626
55°	614	606	590	575	568	548
65°	414	406	393	381	375	409
75°	216	214	207	200	202	231
85°	53	52	50	46	45	59
90°	2	30	50	63	68	12
95°	164	81	98	111	108	194
105°	767	843	154	182	192	820
115°	1451	1494	1557	389	207	1428
125°	2051	2084	2132	2150	2157	1829
135°	2538	2579	2601	2627	2622	1961
145°	2945	2942	2985	3002	2990	1842
155°	3242	3220	3250	3265	3245	1494
165°	3416	3401	3409	3426	3409	965
175°	3494	3477	3482	3500	3474	333
180°	3487	3487	3487	3487	3487	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1340.1	1340.1	1340.1	1340.1	1340.1
2.5°	1347.9	1341.4	1327.2	1340.1	1337.6
5°	1340.1	1335.0	1320.8	1331.0	1328.6
7.5°	1331.0	1323.4	1309.2	1319.6	1317.0
10°	1317.0	1307.9	1292.5	1302.8	1298.9
12.5°	1297.5	1289.9	1274.5	1280.9	1278.2
15°	1275.7	1268.0	1251.2	1256.4	1250.0
17.5°	1248.6	1241.0	1224.2	1230.5	1224.2
20°	1218.9	1211.3	1193.3	1197.0	1192.1
22.5°	1189.4	1177.8	1161.0	1161.0	1158.4
25°	1154.5	1144.3	1122.4	1124.9	1122.4
27.5°	1115.9	1106.8	1090.2	1086.3	1080.0
30°	1077.3	1067.0	1047.7	1043.8	1038.6
32.5°	1036.0	1028.4	1007.7	1000.0	994.7
35°	996.1	983.3	962.6	954.8	948.4
37.5°	951.0	939.4	918.7	909.7	903.3
40°	904.7	894.2	873.6	862.1	857.0
42.5°	859.5	849.1	828.6	815.6	808.0
45°	810.5	801.6	782.1	768.1	762.8
47.5°	762.8	753.8	733.2	719.0	711.4
50°	712.6	706.1	688.1	670.0	663.6
52.5°	663.6	654.6	637.9	623.7	614.7
55°	613.5	605.6	590.2	574.7	568.3
57.5°	563.1	556.7	539.8	524.4	519.3
60°	512.8	507.7	489.7	475.5	471.7
62.5°	463.9	454.9	442.0	429.1	424.0
65°	413.7	405.9	393.0	381.4	375.1
67.5°	362.1	355.6	344.1	335.1	329.9
70°	314.4	309.3	297.6	288.6	283.5
72.5°	265.5	260.3	253.9	244.9	241.0
75°	216.5	214.0	207.4	199.8	202.3
77.5°	172.6	167.5	164.9	161.0	157.2
80°	128.9	127.5	124.9	121.1	118.6
82.5°	87.6	87.6	86.4	81.2	81.2
85°	52.8	51.6	50.3	46.3	45.1
87.5°	23.2	20.7	18.1	14.2	12.8
90°	2.4	30.2	50.4	63.2	68.0
92.5°	63.2	53.0	60.5	65.6	68.0
95°	163.8	80.6	98.2	111.2	108.5
97.5°	295.2	88.4	128.5	136.3	138.7
100°	446.7	101.0	143.8	163.8	169.0
102.5°	613.0	608.2	148.9	176.5	184.3
105°	767.0	842.8	154.0	181.6	191.7
107.5°	946.2	1009.1	159.1	186.7	196.8
110°	1117.8	1170.6	441.6	189.3	199.2



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1279.4	1324.6	1281.8	194.2	201.9
115°	1450.7	1493.6	1556.8	388.6	207.1
117.5°	1599.7	1650.0	1693.2	1332.1	671.1
120°	1766.3	1804.0	1849.5	1879.8	1539.1
122.5°	1907.4	1947.8	1998.5	2013.4	2016.1
125°	2051.2	2084.1	2132.1	2149.7	2157.2
127.5°	2182.4	2217.8	2255.8	2281.0	2283.4
130°	2306.1	2346.6	2374.1	2402.0	2399.6
132.5°	2432.2	2465.2	2492.8	2515.6	2513.2
135°	2538.3	2578.8	2601.3	2626.7	2621.7
137.5°	2649.2	2679.4	2704.9	2730.1	2722.6
140°	2757.7	2778.0	2805.6	2828.4	2815.8
142.5°	2848.7	2866.4	2899.1	2919.1	2906.6
145°	2944.6	2942.0	2984.7	3002.5	2989.8
147.5°	3027.6	3020.1	3063.0	3075.6	3065.7
150°	3108.5	3090.8	3131.3	3146.3	3133.7
152.5°	3176.5	3156.4	3194.2	3209.5	3191.8
155°	3242.1	3219.6	3249.9	3264.9	3244.9
157.5°	3295.1	3275.1	3297.9	3315.5	3295.1
160°	3340.7	3325.4	3340.7	3355.7	3338.0
162.5°	3380.9	3365.9	3378.5	3396.1	3373.4
165°	3416.2	3401.2	3408.7	3426.4	3408.7
167.5°	3444.1	3428.8	3436.6	3454.2	3431.5
170°	3466.8	3451.6	3456.7	3474.3	3451.6
172.5°	3481.8	3466.8	3472.0	3489.6	3466.8
175°	3494.4	3476.7	3481.8	3499.5	3474.3
177.5°	3499.5	3481.8	3484.6	3502.2	3479.5
180°	3487.0	3487.0	3487.0	3487.0	3487.0



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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	4.32	4.99	5.46	6.13	7.71	3.89	4.56	5.03	5.69	7.28
	3H	5.96	6.57	7.12	7.71	9.31	5.49	6.10	6.64	7.24	8.84
	4H	6.54	7.12	7.71	8.26	9.87	6.07	6.64	7.23	7.79	9.40
	6H	6.93	7.46	8.10	8.61	10.23	6.46	6.99	7.63	8.13	9.75
	8H	7.03	7.54	8.21	8.70	10.31	6.56	7.06	7.73	8.22	9.83
	12H	7.08	7.55	8.25	8.71	10.34	6.60	7.07	7.77	8.23	9.86
4H	2H	4.76	5.33	5.93	6.47	8.08	4.41	4.99	5.58	6.13	7.74
	3H	6.61	7.09	7.78	8.25	9.87	6.21	6.69	7.39	7.86	9.48
	4H	7.31	7.76	8.49	8.91	10.55	6.91	7.35	8.08	8.51	10.14
	6H	7.82	8.20	9.00	9.38	11.00	7.41	7.79	8.59	8.97	10.59
	8H	7.97	8.32	9.15	9.49	11.13	7.55	7.90	8.73	9.08	10.72
	12H	8.03	8.35	9.23	9.53	11.18	7.61	7.93	8.80	9.11	10.76
8H	4H	7.50	7.85	8.68	9.02	10.66	7.14	7.49	8.32	8.66	10.30
	6H	8.12	8.41	9.32	9.62	11.27	7.76	8.05	8.96	9.26	10.90
	8H	8.34	8.59	9.54	9.78	11.45	7.97	8.22	9.18	9.41	11.08
	12H	8.46	8.69	9.67	9.87	11.57	8.08	8.30	9.29	9.49	11.18
12H	4H	7.47	7.79	8.67	8.97	10.62	7.12	7.44	8.32	8.62	10.27
	6H	8.15	8.40	9.35	9.59	11.26	7.80	8.05	9.00	9.24	10.90
	8H	8.38	8.61	9.59	9.79	11.49	8.03	8.25	9.23	9.44	11.13