

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: P928886

Luminaire Tested: DFN2DIP-HX4F0-050D120US935-RLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P928886
REPORT IS A COMBINATION OF REPORTS P900966 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-050D120US935-RLONL
Description: 4 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

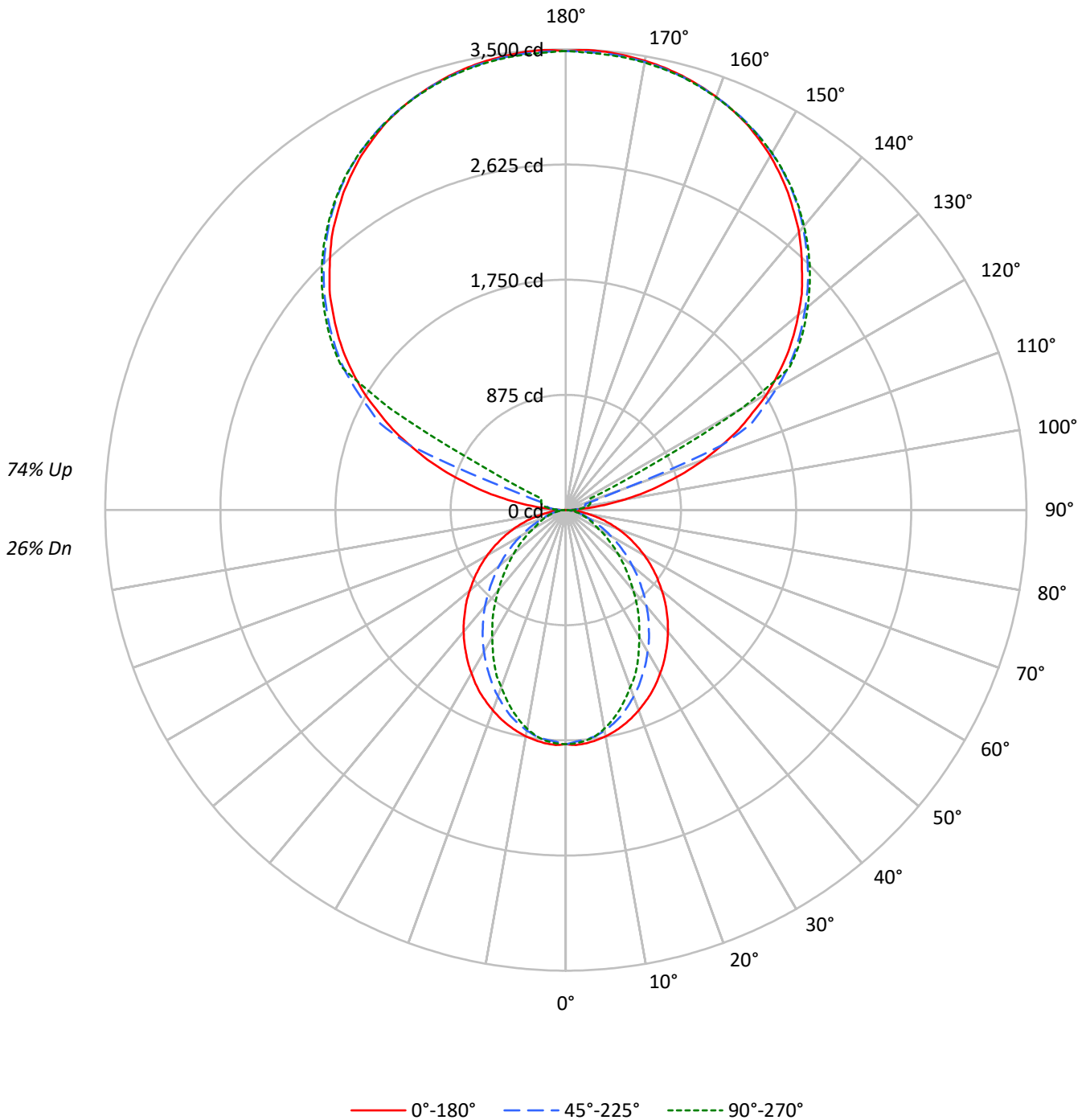
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 13888.0 lumens
Efficiency: N/A
Efficacy: 99.5 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): 139.6
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9957
Total Harmonic Distortion (THDi): 0.049
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P928886
CATALOG NUMBER: DFN2DIP-HX4F0-050D120US935-RLLONL

Luminous Intensity Polar Plot





TEST NUMBER: P928886

CATALOG NUMBER: DFN2DIP-HX4F0-050D120US935-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	102	102	102	102	91	91	91	91	70	70	70	52	52	52	34	34	34	26				26
1	93	89	85	82	83	79	76	74	62	60	58	46	44	43	31	30	29	23				23
2	85	78	72	67	75	70	65	61	54	51	48	40	38	36	27	26	25	19				19
3	77	68	62	56	69	61	56	51	48	44	41	36	33	31	24	23	22	17				17
4	71	61	53	47	63	54	48	43	43	38	35	32	29	27	22	20	19	15				15
5	65	54	46	41	58	49	42	37	38	34	30	29	26	23	20	18	17	13				13
6	60	48	41	35	53	44	37	32	35	30	26	26	23	20	18	16	15	11				11
7	55	44	36	31	49	39	33	28	31	27	23	24	20	18	17	15	13	10				10
8	51	39	32	27	46	36	29	25	28	24	20	22	18	16	15	13	12	9				9
9	48	36	29	24	42	33	26	22	26	21	18	20	17	14	14	12	11	8				8
10	44	33	26	21	40	30	24	20	24	19	16	18	15	13	13	11	10	8				8

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1323	1323	1323
5°	1325	1302	1310
10°	1312	1277	1268
15°	1294	1235	1202
20°	1270	1177	1121
25°	1246	1111	1043
30°	1213	1045	944
35°	1181	973	857
40°	1149	899	757
45°	1111	816	667
50°	1072	733	578
55°	1031	644	494
60°	983	551	406
65°	929	457	366
70°	863	368	331
75°	780	325	301
80°	660	273	262
85°	461	183	197

MAXIMUM LUMINANCE 45°-90°:

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



TEST NUMBER: P928886

CATALOG NUMBER: DFN2DIP-HX4F0-050D120US935-RLLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	166.8	1.2
10°-20°	457.8	3.3
20°-30°	642.7	4.6
30°-40°	700.6	5.0
40°-50°	643.9	4.6
50°-60°	505.7	3.6
60°-70°	329.2	2.4
70°-80°	169.5	1.2
80°-90°	49.4	0.4
90°-100°	115.0	0.8
100°-110°	428.6	3.1
110°-120°	1136.8	8.2
120°-130°	1885.4	13.6
130°-140°	2002.8	14.4
140°-150°	1861.3	13.4
150°-160°	1496.5	10.8
160°-170°	964.3	6.9
170°-180°	331.9	2.4
0°-30°	1267.2	9.1
0°-40°	1967.8	14.2
0°-60°	3117.4	22.4
0°-90°	3665.4	26.4
90°-120°	1680.4	12.1
90°-150°	7429.9	53.5
90°-180°	10223.0	73.6
0°-180°	13888.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1779	1779	1779	1779	1779	
5°	1779	1771	1750	1765	1760	169
15°	1692	1675	1620	1589	1573	477
25°	1536	1484	1378	1312	1288	706
35°	1324	1242	1100	998	963	828
45°	1082	974	805	691	652	836
55°	823	697	523	427	396	735
65°	556	425	280	226	221	551
75°	296	184	129	118	116	313
85°	69	35	31	31	31	79
90°	2	30	50	63	68	13
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	



TEST NUMBER: P928886

CATALOG NUMBER: DFN2DIP-HX4F0-050D120US935-RLLONL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1779.3	1779.3	1779.3	1779.3	1779.3
2.5°	1787.3	1779.3	1761.5	1777.7	1774.4
5°	1779.3	1771.2	1750.2	1764.7	1760.0
7.5°	1764.7	1755.1	1732.6	1739.0	1730.9
10°	1745.4	1734.1	1702.0	1697.1	1687.5
12.5°	1721.3	1706.8	1663.3	1653.7	1635.9
15°	1692.3	1674.6	1619.9	1589.3	1573.2
17.5°	1658.5	1632.7	1565.0	1529.7	1503.8
20°	1619.9	1587.6	1507.1	1467.0	1431.4
22.5°	1578.0	1540.9	1447.5	1392.8	1368.7
25°	1536.1	1484.5	1378.3	1312.3	1288.1
27.5°	1486.3	1431.4	1313.9	1238.2	1201.2
30°	1433.1	1371.8	1243.0	1161.0	1117.4
32.5°	1381.6	1307.4	1175.5	1078.8	1038.5
35°	1323.6	1241.5	1099.8	998.3	962.9
37.5°	1267.2	1178.6	1029.0	917.7	877.6
40°	1207.6	1111.1	954.8	840.5	798.7
42.5°	1146.5	1043.4	880.8	761.6	721.4
45°	1082.1	974.1	805.1	690.7	652.0
47.5°	1020.9	906.6	732.7	618.3	582.9
50°	953.3	839.0	661.9	550.6	516.9
52.5°	887.2	766.4	594.2	487.9	457.4
55°	822.8	697.2	523.2	426.7	396.1
57.5°	756.8	628.0	460.5	370.4	344.6
60°	689.1	560.3	394.4	312.5	286.6
62.5°	623.2	494.4	338.1	260.9	248.1
65°	555.5	425.1	280.2	225.5	220.6
67.5°	491.1	360.7	225.5	198.0	193.2
70°	423.5	297.9	186.8	170.7	164.2
72.5°	359.1	239.9	156.2	143.4	140.1
75°	296.3	183.5	128.8	117.5	116.0
77.5°	233.5	130.4	101.5	95.0	91.7
80°	175.5	93.4	77.2	70.9	70.9
82.5°	122.3	62.9	53.1	49.9	49.9
85°	69.2	35.4	30.6	30.6	30.6
87.5°	25.8	12.8	12.8	11.3	11.3
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



TEST NUMBER: P928886

CATALOG NUMBER: DFN2DIP-HX4F0-050D120US935-RLLONL

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



TEST NUMBER: P928886
 CATALOG NUMBER: DFN2DIP-HX4F0-050D120US935-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	5.37	6.04	6.51	7.16	8.74	1.34	2.01	2.48	3.14	4.71
	3H	7.03	7.63	8.18	8.77	10.36	2.52	3.12	3.67	4.25	5.84
	4H	7.63	8.20	8.79	9.34	10.93	2.96	3.53	4.12	4.67	6.26
	6H	8.05	8.57	9.21	9.71	11.31	3.28	3.80	4.44	4.94	6.54
	8H	8.17	8.67	9.34	9.82	11.42	3.36	3.86	4.53	5.01	6.61
	12H	8.23	8.70	9.40	9.85	11.47	3.40	3.87	4.57	5.02	6.64
4H	2H	5.36	5.93	6.53	7.07	8.66	1.92	2.48	3.08	3.62	5.21
	3H	7.18	7.65	8.35	8.82	10.42	3.25	3.73	4.42	4.89	6.49
	4H	7.87	8.30	9.04	9.45	11.08	3.80	4.23	4.97	5.38	7.01
	6H	8.37	8.75	9.55	9.92	11.54	4.21	4.58	5.39	5.75	7.37
	8H	8.55	8.89	9.72	10.06	11.69	4.34	4.68	5.51	5.85	7.48
	12H	8.64	8.95	9.83	10.13	11.76	4.39	4.71	5.59	5.88	7.52
8H	4H	7.82	8.17	9.00	9.33	10.97	4.07	4.41	5.24	5.58	7.21
	6H	8.38	8.67	9.58	9.88	11.51	4.58	4.87	5.77	6.07	7.70
	8H	8.60	8.85	9.80	10.03	11.68	4.77	5.02	5.97	6.21	7.85
	12H	8.73	8.95	9.94	10.13	11.82	4.89	5.10	6.09	6.29	7.97
12H	4H	7.77	8.08	8.96	9.26	10.90	4.06	4.38	5.25	5.55	7.19
	6H	8.36	8.61	9.56	9.79	11.44	4.63	4.88	5.83	6.06	7.71
	8H	8.57	8.79	9.78	9.97	11.66	4.83	5.05	6.04	6.23	7.92