

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: P916279

Luminaire Tested: DFN2DIP-HX3F0-080D030US930-FLLONL

Issue Date: 11/21/2024

**Test Information**

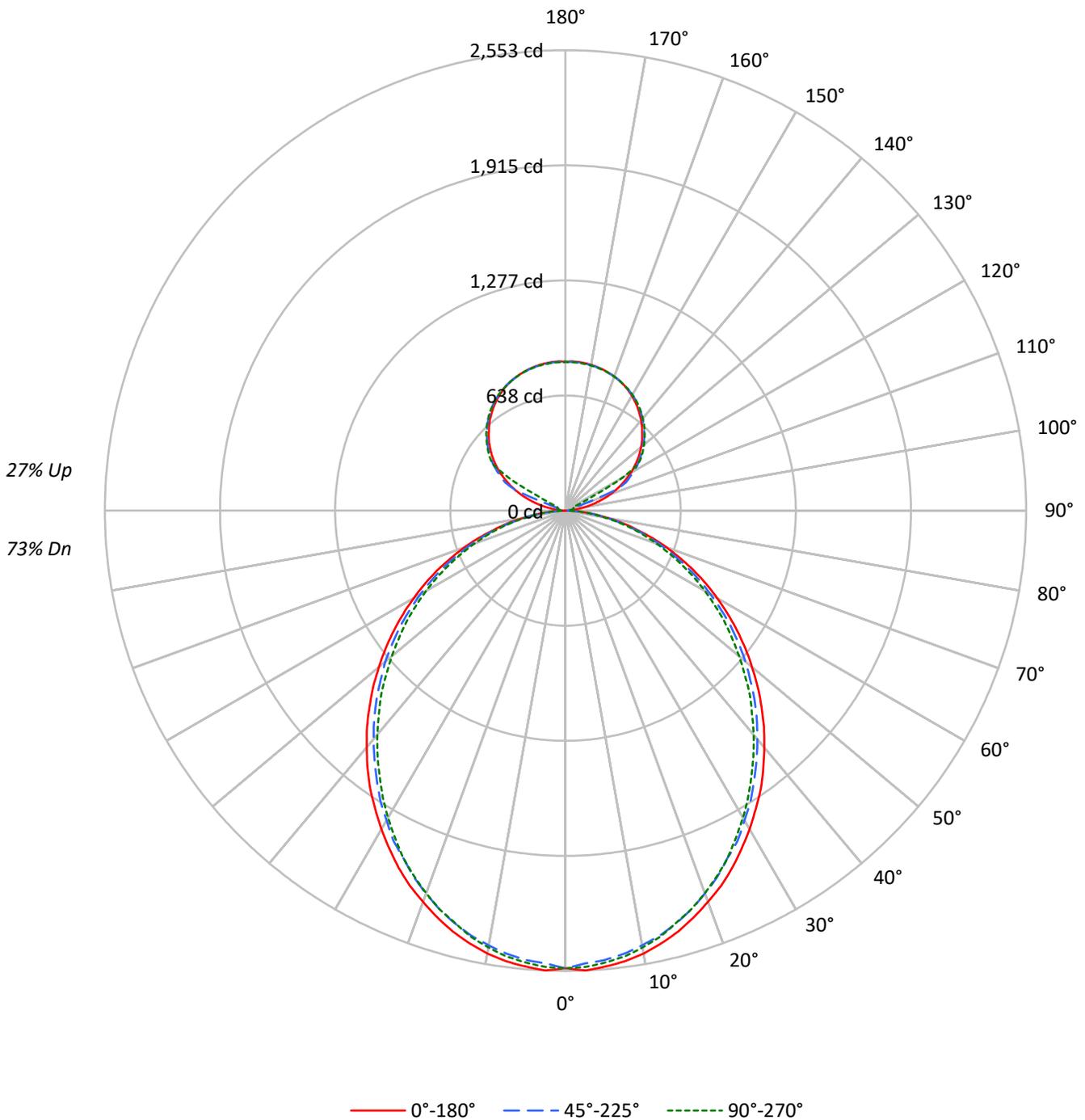
Test Method: LM-79-2019  
Report Number: P916279  
REPORT IS A COMBINATION OF REPORTS P900731 AND P897645  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-HX3F0-080D030US930-FLONL  
Description: 3 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Open No Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 8878.6 lumens  
Efficiency: N/A  
Efficacy: 86.3 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29  
Luminous Opening: Rectangular w/ Sides (W: 2.84' x L: 3.28' x H: 0.1')  
CIE Type: Semi-Direct  
  
Input Watts (W): 102.9  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.9971  
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	113	113	113	113	107	107	107	107	96	96	96	86	86	86	77	77	77	77	77	77	73
1	103	98	94	91	97	94	90	87	84	82	79	76	74	72	68	67	65	65	65	65	61
2	94	86	80	74	89	82	76	71	74	69	66	67	63	60	60	57	55	55	55	55	51
3	86	76	68	62	81	72	65	60	65	60	55	59	55	51	53	50	47	47	47	47	44
4	78	67	59	53	74	64	57	51	58	52	47	53	48	44	48	44	40	40	40	40	37
5	72	60	51	45	68	57	50	44	52	46	41	47	42	38	43	39	35	35	35	35	32
6	67	54	45	39	63	52	44	38	47	41	36	43	37	33	39	35	31	31	31	31	29
7	62	49	41	35	58	47	39	34	43	36	32	39	34	30	36	31	28	28	28	28	25
8	57	44	36	31	54	43	35	30	39	33	28	36	30	27	33	28	25	25	25	25	23
9	53	41	33	28	51	39	32	27	36	30	25	33	28	24	30	26	22	22	22	22	20
10	50	38	30	25	48	36	29	24	33	27	23	31	25	22	28	24	20	20	20	20	19

**AVERAGE LUMINANCE (cd/sqm):**

	0°	45°	90°
0°	2940	2940	2940
5°	2943	2897	2917
10°	2918	2856	2876
15°	2874	2807	2812
20°	2814	2739	2748
25°	2755	2659	2673
30°	2682	2584	2578
35°	2612	2497	2479
40°	2526	2408	2384
45°	2440	2319	2286
50°	2347	2225	2174
55°	2248	2117	2069
60°	2137	1988	1950
65°	2016	1855	1810
70°	1861	1693	1658
75°	1647	1498	1516
80°	1389	1249	1248
85°	985	827	809

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 2440 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	238.9	2.7
10°-20°	672.1	7.6
20°-30°	987.7	11.1
30°-40°	1147.1	12.9
40°-50°	1145.7	12.9
50°-60°	999.0	11.3
60°-70°	738.5	8.3
70°-80°	417.8	4.7
80°-90°	111.7	1.3
90°-100°	27.2	0.3
100°-110°	101.5	1.1
110°-120°	269.1	3.0
120°-130°	446.3	5.0
130°-140°	474.1	5.3
140°-150°	440.6	5.0
150°-160°	354.3	4.0
160°-170°	228.3	2.6
170°-180°	78.6	0.9
0°-30°	1898.6	21.4
0°-40°	3045.8	34.3
0°-60°	5190.5	58.5
0°-90°	6458.6	72.7
90°-120°	397.8	4.5
90°-150°	1758.9	19.8
90°-180°	2420.0	27.3
0°-180°	8878.6	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	2538	2538	2538	2538	2538	
5°	2538	2528	2501	2521	2516	241
15°	2416	2402	2370	2379	2367	680
25°	2186	2167	2126	2130	2126	1006
35°	1886	1862	1823	1808	1796	1178
45°	1535	1518	1481	1455	1445	1185
55°	1162	1147	1118	1088	1076	1039
65°	784	769	744	722	710	775
75°	410	405	393	378	383	438
85°	100	98	95	88	85	112
90°	1	7	12	15	16	8
95°	39	19	23	26	26	46
105°	182	200	36	43	45	194
115°	343	354	368	92	49	338
125°	486	493	505	509	511	433
135°	601	610	616	622	621	464
145°	697	696	707	711	708	436
155°	768	762	769	773	768	354
165°	809	805	807	811	807	228
175°	827	823	824	828	822	79
180°	826	826	826	826	826	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	2537.9	2537.9	2537.9	2537.9	2537.9
2.5°	2552.6	2540.5	2513.6	2537.9	2533.2
5°	2537.9	2528.3	2501.4	2520.8	2516.2
7.5°	2520.8	2506.3	2479.4	2499.1	2494.2
10°	2494.2	2477.0	2447.8	2467.2	2460.0
12.5°	2457.4	2442.9	2413.6	2425.8	2420.9
15°	2416.0	2401.5	2369.6	2379.4	2367.3
17.5°	2364.7	2350.2	2318.3	2330.5	2318.3
20°	2308.5	2294.0	2259.8	2267.1	2257.5
22.5°	2252.6	2230.6	2198.7	2198.7	2193.8
25°	2186.5	2167.1	2125.7	2130.4	2125.7
27.5°	2113.3	2096.2	2064.6	2057.3	2045.2
30°	2040.3	2020.6	1984.1	1976.9	1967.0
32.5°	1962.1	1947.6	1908.5	1893.7	1883.9
35°	1886.4	1862.1	1823.0	1808.2	1796.1
37.5°	1801.0	1779.0	1739.9	1722.8	1710.7
40°	1713.3	1693.5	1654.5	1632.7	1622.9
42.5°	1627.8	1608.1	1569.3	1544.7	1530.2
45°	1535.1	1518.0	1481.2	1454.6	1444.8
47.5°	1444.8	1427.7	1388.5	1361.6	1347.1
50°	1349.5	1337.3	1303.1	1268.9	1256.8
52.5°	1256.8	1239.7	1208.1	1181.2	1164.1
55°	1161.7	1147.0	1117.8	1088.5	1076.3
57.5°	1066.5	1054.3	1022.5	993.2	983.3
60°	971.2	961.6	927.4	900.5	893.2
62.5°	878.5	861.4	837.1	812.8	802.9
65°	783.5	768.7	744.4	722.4	710.2
67.5°	685.8	673.4	651.7	634.6	624.8
70°	595.5	585.6	563.7	546.6	537.0
72.5°	502.8	493.0	480.8	463.7	456.5
75°	409.9	405.2	392.8	378.3	383.2
77.5°	327.0	317.2	312.3	305.0	297.7
80°	244.2	241.6	236.7	229.4	224.5
82.5°	166.0	166.0	163.6	153.8	153.8
85°	100.0	97.6	95.3	87.8	85.4
87.5°	44.0	39.1	34.2	26.9	24.4
90°	0.6	7.2	11.9	15.0	16.1
92.5°	15.0	12.6	14.3	15.6	16.1
95°	38.8	19.1	23.2	26.3	25.7
97.5°	69.9	21.0	30.4	32.3	32.9
100°	105.7	23.9	34.1	38.8	40.0
102.5°	145.1	144.0	35.2	41.7	43.6
105°	181.6	199.5	36.4	43.0	45.4
107.5°	224.0	238.9	37.7	44.2	46.6
110°	264.6	277.1	104.5	44.8	47.2



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**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	302.9	313.6	303.5	46.0	47.8
115°	343.4	353.6	368.5	92.0	49.0
117.5°	378.7	390.6	400.8	315.4	158.9
120°	418.1	427.1	437.8	445.0	364.4
122.5°	451.5	461.1	473.1	476.6	477.3
125°	485.6	493.3	504.8	508.9	510.7
127.5°	516.7	525.0	534.0	540.0	540.5
130°	545.9	555.5	562.1	568.6	568.1
132.5°	575.8	583.6	590.1	595.5	594.9
135°	600.9	610.5	615.8	621.8	620.6
137.5°	627.1	634.3	640.3	646.3	644.5
140°	652.8	657.6	664.1	669.5	666.6
142.5°	674.4	678.6	686.3	691.0	688.1
145°	697.1	696.4	706.6	710.8	707.8
147.5°	716.7	714.9	725.1	728.1	725.7
150°	735.9	731.7	741.3	744.8	741.8
152.5°	751.9	747.2	756.2	759.8	755.6
155°	767.5	762.2	769.3	772.9	768.2
157.5°	780.1	775.3	780.7	784.9	780.1
160°	790.8	787.3	790.8	794.4	790.2
162.5°	800.4	796.8	799.8	804.0	798.6
165°	808.7	805.2	807.0	811.1	807.0
167.5°	815.3	811.7	813.5	817.7	812.4
170°	820.7	817.1	818.3	822.5	817.1
172.5°	824.3	820.7	821.9	826.1	820.7
175°	827.2	823.0	824.3	828.4	822.5
177.5°	828.4	824.3	824.9	829.1	823.7
180°	825.5	825.5	825.5	825.5	825.5



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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	12.85	13.96	13.59	14.72	15.62	12.42	13.53	13.16	14.29	15.19
	3H	14.52	15.52	15.27	16.29	17.22	14.05	15.05	14.80	15.82	16.75
	4H	15.12	16.06	15.88	16.83	17.78	14.65	15.59	15.41	16.36	17.31
	6H	15.52	16.39	16.30	17.18	18.14	15.05	15.92	15.83	16.71	17.67
	8H	15.63	16.46	16.42	17.26	18.23	15.16	15.99	15.95	16.79	17.76
	12H	15.69	16.48	16.48	17.27	18.26	15.21	16.00	16.01	16.80	17.79
4H	2H	13.34	14.28	14.11	15.06	16.00	13.00	13.94	13.77	14.71	15.66
	3H	15.22	16.01	16.00	16.82	17.78	14.83	15.62	15.61	16.43	17.39
	4H	15.94	16.65	16.73	17.46	18.46	15.54	16.25	16.33	17.06	18.05
	6H	16.46	17.08	17.27	17.91	18.91	16.06	16.68	16.87	17.51	18.51
	8H	16.61	17.19	17.43	18.02	19.03	16.20	16.78	17.02	17.61	18.62
	12H	16.69	17.22	17.53	18.07	19.08	16.28	16.80	17.11	17.65	18.67
8H	4H	16.15	16.73	16.97	17.56	18.57	15.79	16.37	16.61	17.20	18.21
	6H	16.78	17.26	17.63	18.14	19.15	16.42	16.91	17.27	17.78	18.79
	8H	17.00	17.43	17.86	18.30	19.33	16.64	17.06	17.49	17.93	18.96
	12H	17.14	17.52	18.00	18.37	19.46	16.76	17.14	17.62	18.00	19.08
12H	4H	16.15	16.67	16.99	17.52	18.54	15.80	16.32	16.64	17.17	18.19
	6H	16.81	17.24	17.67	18.11	19.14	16.47	16.89	17.32	17.76	18.79
	8H	17.06	17.44	17.92	18.30	19.38	16.71	17.09	17.57	17.94	19.03