

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: P910798

Luminaire Tested: DFN2DIP-HX3F0-070D030US850-FLLFLL

Issue Date: 11/21/2024

**Test Information**

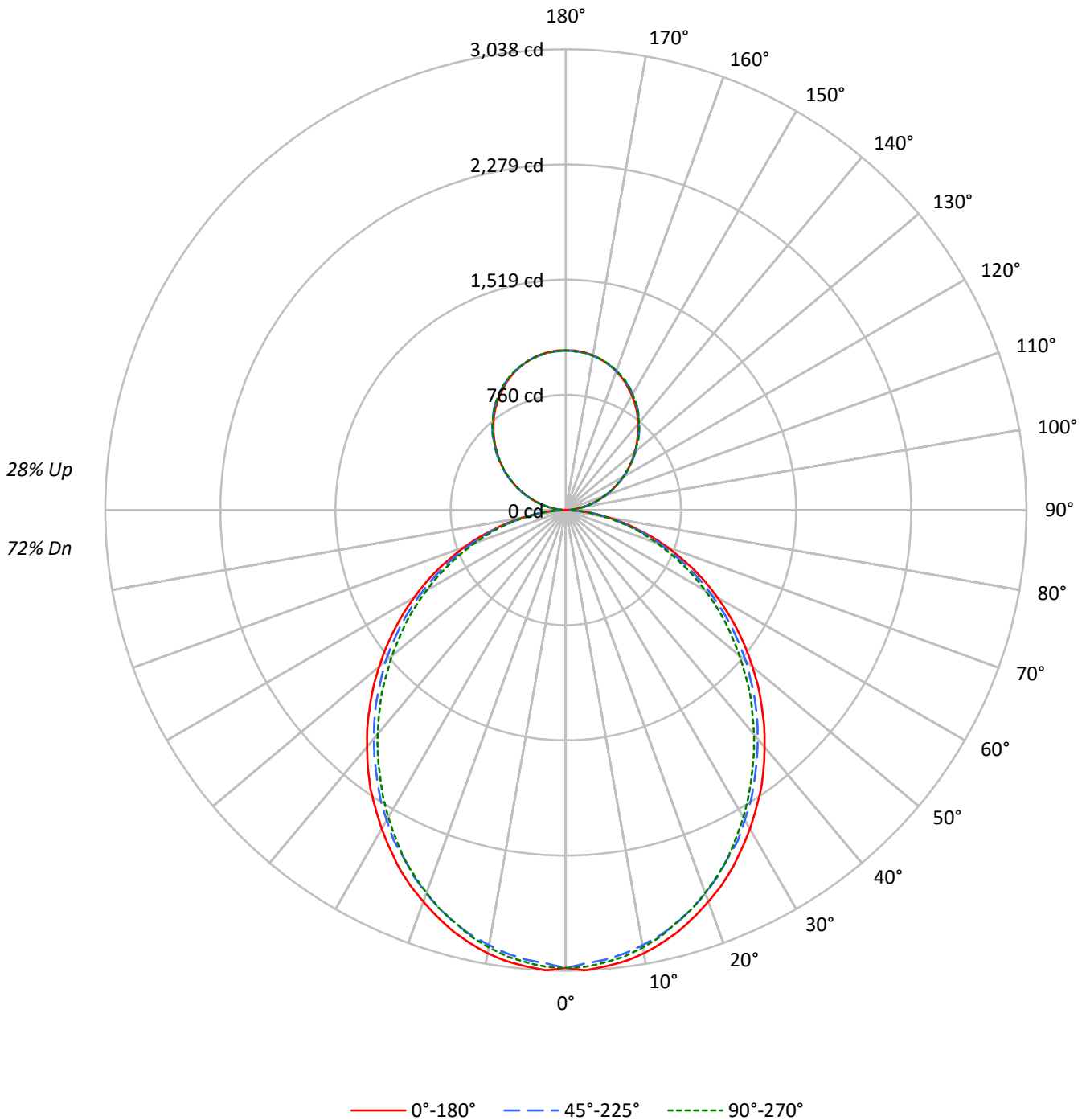
Test Method: LM-79-2019  
Report Number: P910798  
REPORT IS A COMBINATION OF REPORTS P899209 AND P896089  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-HX3F0-070D030US850-FLLFLL  
Description: 3 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Frosted Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 10629.7 lumens  
Efficiency: N/A  
Efficacy: 115.4 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): 92.1  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.9789  
Total Harmonic Distortion (THDi): 0.074  
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				
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	112	112	112	112	107	107	107	107	96	96	96	86	86	86	77	77	77	77	77	77	72
1	103	98	94	91	97	93	90	87	84	81	79	76	74	72	68	66	65	65	65	65	61
2	94	86	80	74	89	82	76	71	74	69	65	66	63	60	60	57	55	55	55	55	51
3	85	76	68	62	81	72	65	60	65	60	55	59	54	51	53	49	46	46	46	46	43
4	78	67	59	52	74	64	56	51	58	52	47	52	48	44	47	43	40	40	40	40	37
5	72	60	51	45	68	57	49	44	52	46	41	47	42	38	43	38	35	35	35	35	32
6	66	54	45	39	63	51	44	38	47	40	36	43	37	33	39	34	31	31	31	31	28
7	62	49	41	35	58	47	39	34	43	36	32	39	34	30	35	31	27	27	27	27	25
8	57	44	36	31	54	43	35	30	39	33	28	36	30	26	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	37	30	25	47	36	29	24	33	27	23	30	25	22	28	24	20	20	20	20	18

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

	0°	45°	90°
0°	3499	3499	3499
5°	3503	3448	3471
10°	3473	3399	3423
15°	3420	3341	3347
20°	3350	3260	3270
25°	3280	3165	3181
30°	3192	3076	3069
35°	3109	2972	2950
40°	3006	2866	2837
45°	2904	2760	2721
50°	2793	2648	2587
55°	2676	2519	2463
60°	2543	2367	2321
65°	2399	2208	2154
70°	2215	2014	1973
75°	1960	1782	1804
80°	1652	1487	1485
85°	1172	985	963

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 2904 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	284.3	2.7
10°-20°	799.9	7.5
20°-30°	1175.6	11.1
30°-40°	1365.3	12.8
40°-50°	1363.6	12.8
50°-60°	1189.1	11.2
60°-70°	879.0	8.3
70°-80°	497.3	4.7
80°-90°	134.3	1.3
90°-100°	65.1	0.6
100°-110°	206.9	1.9
110°-120°	354.0	3.3
120°-130°	465.6	4.4
130°-140°	522.6	4.9
140°-150°	512.5	4.8
150°-160°	429.9	4.0
160°-170°	285.1	2.7
170°-180°	99.7	0.9
0°-30°	2259.8	21.3
0°-40°	3625.1	34.1
0°-60°	6177.8	58.1
0°-90°	7688.4	72.3
90°-120°	626.0	5.9
90°-150°	2126.7	20.0
90°-180°	2941.0	27.7
0°-180°	10629.7	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	3021	3021	3021	3021	3021	
5°	3021	3009	2977	3000	2995	287
15°	2876	2858	2820	2832	2818	810
25°	2602	2579	2530	2536	2530	1198
35°	2245	2216	2170	2152	2138	1402
45°	1827	1807	1763	1731	1720	1410
55°	1383	1365	1330	1296	1281	1236
65°	933	915	886	860	845	922
75°	488	482	467	450	456	521
85°	119	116	114	104	102	133
90°	1	11	31	29	30	10
95°	46	55	57	57	55	52
105°	191	194	195	197	197	202
115°	355	360	359	358	355	351
125°	517	525	522	519	518	462
135°	668	678	680	679	677	517
145°	812	818	823	824	820	507
155°	928	930	933	938	935	427
165°	1009	1008	1008	1015	1010	285
175°	1050	1048	1046	1052	1047	100
180°	1052	1052	1052	1052	1052	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	3020.6	3020.6	3020.6	3020.6	3020.6
2.5°	3038.2	3023.7	2991.6	3020.6	3015.0
5°	3020.6	3009.3	2977.2	3000.3	2994.7
7.5°	3000.3	2983.0	2950.9	2974.4	2968.6
10°	2968.6	2948.2	2913.3	2936.5	2927.9
12.5°	2924.8	2907.6	2872.8	2887.2	2881.3
15°	2875.5	2858.2	2820.3	2832.1	2817.5
17.5°	2814.4	2797.2	2759.3	2773.8	2759.3
20°	2747.5	2730.4	2689.7	2698.3	2686.9
22.5°	2681.0	2654.8	2616.9	2616.9	2611.0
25°	2602.5	2579.3	2530.1	2535.6	2530.1
27.5°	2515.2	2494.9	2457.3	2448.7	2434.1
30°	2428.4	2404.9	2361.5	2352.9	2341.1
32.5°	2335.2	2318.0	2271.5	2253.9	2242.2
35°	2245.3	2216.3	2169.8	2152.2	2137.7
37.5°	2143.6	2117.4	2070.8	2050.5	2036.0
40°	2039.1	2015.7	1969.1	1943.3	1931.5
42.5°	1937.4	1914.0	1867.8	1838.5	1821.2
45°	1827.1	1806.8	1763.0	1731.3	1719.5
47.5°	1719.5	1699.2	1652.6	1620.6	1603.4
50°	1606.2	1591.6	1550.9	1510.3	1495.8
52.5°	1495.8	1475.5	1437.9	1405.9	1385.5
55°	1382.7	1365.2	1330.4	1295.5	1281.0
57.5°	1269.4	1254.8	1216.9	1182.1	1170.4
60°	1155.9	1144.5	1103.9	1071.8	1063.2
62.5°	1045.6	1025.3	996.3	967.4	955.6
65°	932.6	914.9	886.0	859.8	845.3
67.5°	816.3	801.6	775.6	755.3	743.6
70°	708.8	697.1	670.8	650.5	639.1
72.5°	598.4	586.8	572.2	551.9	543.3
75°	487.8	482.3	467.4	450.3	456.1
77.5°	389.3	377.5	371.6	363.0	354.4
80°	290.6	287.6	281.7	273.0	267.2
82.5°	197.5	197.5	194.7	183.1	183.1
85°	119.0	116.2	113.5	104.5	101.7
87.5°	52.3	46.6	40.7	32.1	28.9
90°	1.0	11.4	31.1	29.2	30.2
92.5°	19.6	26.6	27.6	28.5	28.5
95°	46.4	55.2	56.8	56.8	55.2
97.5°	77.1	85.3	88.8	88.8	88.8
100°	112.6	119.9	122.4	122.4	121.5
102.5°	150.0	155.5	158.9	159.9	158.9
105°	191.0	193.5	195.4	197.0	197.0
107.5°	231.6	235.3	235.3	236.0	231.6
110°	270.9	276.0	276.0	276.0	273.5



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**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	313.4	318.8	317.8	315.3	313.4
115°	355.3	360.3	358.8	357.9	355.3
117.5°	396.8	403.8	399.4	396.8	394.2
120°	438.7	445.7	438.7	438.7	435.8
122.5°	476.8	485.6	481.2	478.6	476.8
125°	516.8	524.7	522.1	519.2	518.3
127.5°	555.7	565.6	562.2	558.3	555.7
130°	592.2	603.6	602.1	600.2	596.6
132.5°	633.1	642.0	642.7	638.2	635.7
135°	668.4	678.2	680.1	679.2	676.6
137.5°	707.7	715.6	717.2	716.6	712.8
140°	742.3	750.2	754.7	754.7	751.1
142.5°	777.9	785.7	788.3	789.3	785.7
145°	811.5	817.8	822.9	823.8	820.3
147.5°	841.6	849.5	853.3	854.9	851.4
150°	872.7	878.1	881.5	884.4	881.5
152.5°	900.3	905.6	910.0	913.6	910.0
155°	927.9	930.3	933.2	937.7	934.9
157.5°	951.6	953.5	955.2	961.5	957.1
160°	972.9	974.8	975.8	981.1	977.4
162.5°	992.6	992.6	993.6	999.5	995.1
165°	1009.4	1008.4	1008.4	1014.7	1010.3
167.5°	1024.6	1021.7	1021.7	1028.0	1023.6
170°	1036.0	1033.5	1032.6	1038.9	1033.5
172.5°	1043.9	1041.5	1040.5	1046.8	1041.5
175°	1050.3	1047.8	1045.9	1052.2	1046.8
177.5°	1053.8	1051.2	1049.3	1054.8	1049.3
180°	1052.2	1052.2	1052.2	1052.2	1052.2



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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	13.43	14.53	14.16	15.29	16.20	13.00	14.10	13.73	14.86	15.77
	3H	15.10	16.09	15.85	16.86	17.80	14.63	15.62	15.38	16.39	17.33
	4H	15.69	16.63	16.46	17.41	18.36	15.22	16.16	15.99	16.94	17.89
	6H	16.10	16.96	16.88	17.75	18.72	15.63	16.49	16.41	17.28	18.25
	8H	16.20	17.03	17.00	17.84	18.81	15.73	16.56	16.53	17.37	18.34
	12H	16.26	17.04	17.06	17.85	18.84	15.78	16.57	16.58	17.37	18.37
4H	2H	13.91	14.85	14.69	15.63	16.58	13.57	14.51	14.34	15.29	16.24
	3H	15.79	16.58	16.58	17.39	18.36	15.40	16.19	16.19	17.00	17.97
	4H	16.51	17.22	17.31	18.04	19.04	16.11	16.82	16.91	17.63	18.63
	6H	17.03	17.65	17.85	18.49	19.49	16.63	17.24	17.44	18.08	19.09
	8H	17.18	17.76	18.00	18.59	19.61	16.78	17.35	17.60	18.19	19.20
	12H	17.26	17.78	18.11	18.64	19.66	16.85	17.37	17.69	18.22	19.25
8H	4H	16.72	17.30	17.54	18.13	19.15	16.37	16.94	17.19	17.78	18.79
	6H	17.36	17.83	18.21	18.71	19.73	17.00	17.47	17.85	18.35	19.37
	8H	17.57	18.00	18.43	18.87	19.91	17.21	17.63	18.07	18.50	19.54
	12H	17.71	18.09	18.57	18.95	20.04	17.33	17.71	18.20	18.57	19.66
12H	4H	16.72	17.24	17.56	18.09	19.12	16.37	16.89	17.21	17.74	18.77
	6H	17.39	17.81	18.25	18.68	19.72	17.04	17.46	17.90	18.33	19.37
	8H	17.63	18.01	18.50	18.87	19.96	17.28	17.65	18.14	18.52	19.61