

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: P910934

Luminaire Tested: DFN2DIP-HX4F0-070D090US850-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P910934
REPORT IS A COMBINATION OF REPORTS P899395 AND P896188
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-070D090US850-FLLFLL
Description: 4 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

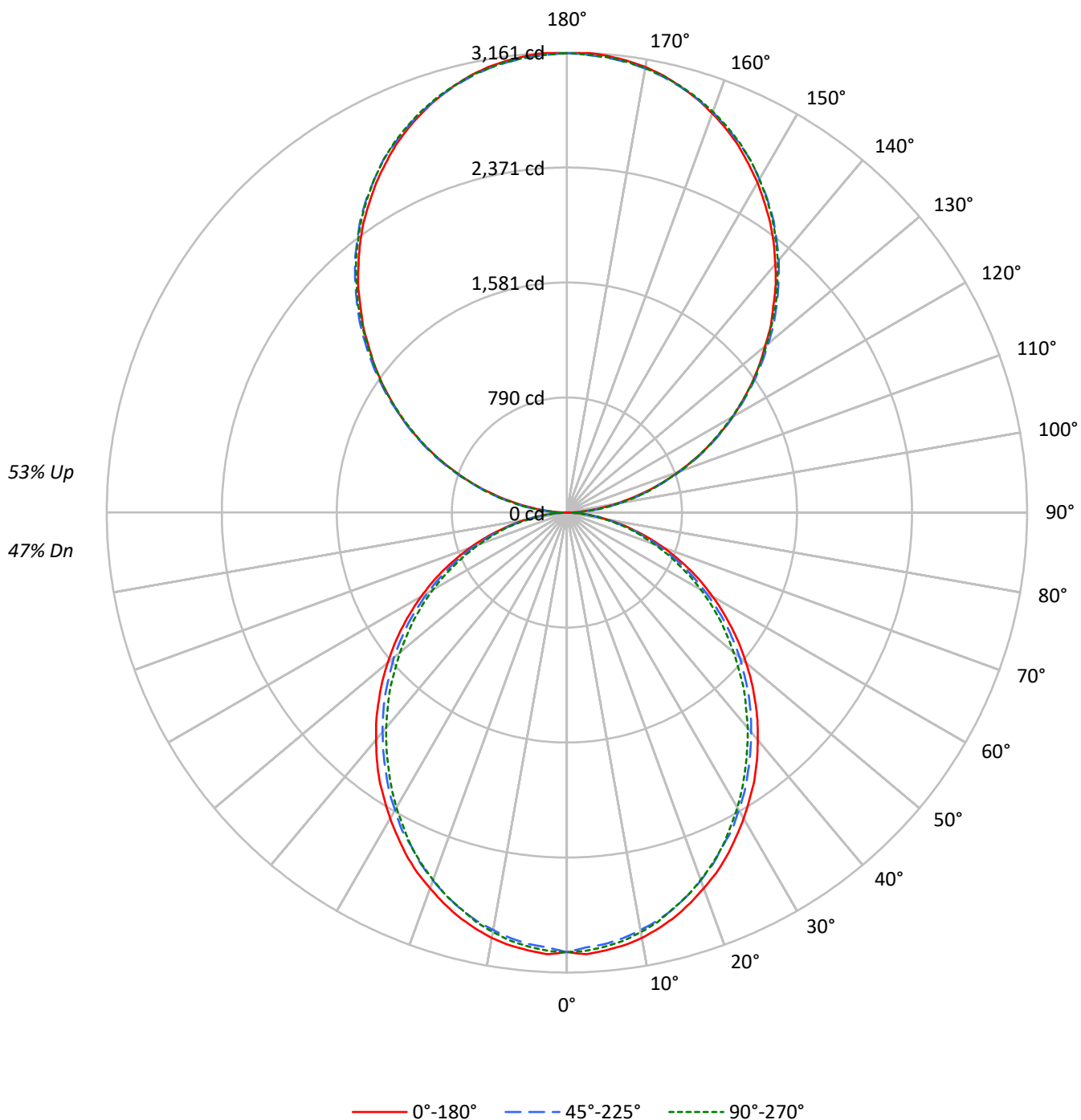
Lumens per Lamp: N/A
Luminaire Lumens: 16518.6 lumens
Efficiency: N/A
Efficacy: 140.8 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 117.3
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9972
Total Harmonic Distortion (THDi): 0.128
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					0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10
RCR																				
0	106	106	106	106	98	98	98	98	81	81	81	67	67	67	53	53	53	47	47	47
1	97	93	89	85	89	85	82	79	71	69	67	59	57	55	47	46	45	39	39	39
2	88	81	75	70	81	75	69	65	63	59	55	51	49	46	41	39	38	33	33	33
3	81	71	64	58	74	66	59	54	55	50	47	45	42	39	37	34	32	28	28	28
4	74	63	55	49	67	58	51	46	49	44	40	41	37	34	33	30	28	24	24	24
5	68	56	48	42	62	52	45	39	44	38	34	36	32	29	29	26	24	21	21	21
6	62	50	42	36	57	47	39	34	39	34	30	33	29	25	27	24	21	18	18	18
7	58	45	37	32	53	42	35	30	36	30	26	30	26	23	24	21	19	16	16	16
8	53	41	33	28	49	38	31	27	33	27	23	27	23	20	22	19	17	14	14	14
9	50	38	30	25	46	35	28	24	30	25	21	25	21	18	21	18	15	13	13	13
10	46	34	27	22	43	32	26	21	28	22	19	23	19	16	19	16	14	12	12	12

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2246	2246	2246
5°	2250	2215	2230
10°	2232	2185	2200
15°	2199	2150	2153
20°	2155	2100	2104
25°	2111	2040	2049
30°	2056	1985	1978
35°	2004	1919	1903
40°	1939	1853	1831
45°	1875	1787	1758
50°	1805	1718	1674
55°	1732	1638	1596
60°	1649	1542	1507
65°	1559	1443	1402
70°	1444	1323	1289
75°	1284	1179	1185
80°	1093	996	986
85°	793	679	656

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 2380 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	284.3	1.7
10°-20°	799.9	4.8
20°-30°	1175.6	7.1
30°-40°	1365.3	8.3
40°-50°	1363.6	8.3
50°-60°	1189.1	7.2
60°-70°	879.0	5.3
70°-80°	497.3	3.0
80°-90°	140.2	0.8
90°-100°	195.3	1.2
100°-110°	620.6	3.8
110°-120°	1062.1	6.4
120°-130°	1396.8	8.5
130°-140°	1567.9	9.5
140°-150°	1537.5	9.3
150°-160°	1289.7	7.8
160°-170°	855.3	5.2
170°-180°	299.0	1.8
0°-30°	2259.8	13.7
0°-40°	3625.1	21.9
0°-60°	6177.8	37.4
0°-90°	7694.3	46.6
90°-120°	1878.1	11.4
90°-150°	6380.2	38.6
90°-180°	8824.0	53.4
0°-180°	16518.6	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°	3	34	93	88	90	16
95°	139	166	170	170	166	155
105°	573	580	586	591	591	605
115°	1066	1081	1076	1074	1066	1054
125°	1550	1574	1566	1558	1555	1385
135°	2005	2035	2040	2038	2030	1550
145°	2434	2453	2468	2471	2461	1521
155°	2784	2791	2800	2813	2805	1281
165°	3028	3025	3025	3044	3031	854
175°	3151	3143	3138	3157	3140	299
180°	3157	3157	3157	3157	3157	

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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°	2.9	34.3	93.3	87.5	90.4
92.5°	59.0	80.0	82.8	85.6	85.6
95°	139.0	165.6	170.3	170.3	165.6
97.5°	231.2	256.0	266.5	266.5	266.5
100°	337.8	359.8	367.3	367.3	364.5
102.5°	450.1	466.3	476.8	479.6	476.8
105°	572.9	580.5	586.2	591.0	591.0
107.5°	694.7	706.1	706.1	708.0	694.7
110°	812.7	828.0	828.0	828.0	820.3

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	940.2	956.4	953.5	946.0	940.2
115°	1065.9	1081.1	1076.3	1073.5	1065.9
117.5°	1190.5	1211.5	1198.2	1190.5	1182.9
120°	1316.2	1337.0	1316.2	1316.2	1307.5
122.5°	1430.3	1457.0	1443.7	1436.0	1430.3
125°	1550.3	1574.0	1566.5	1557.8	1555.0
127.5°	1667.3	1696.8	1686.3	1674.9	1667.3
130°	1776.7	1811.0	1806.2	1800.5	1790.0
132.5°	1899.5	1926.1	1928.0	1914.7	1907.1
135°	2005.1	2034.6	2040.3	2037.5	2029.9
137.5°	2123.1	2146.9	2151.7	2149.8	2138.4
140°	2226.9	2250.6	2263.9	2263.9	2253.5
142.5°	2333.4	2357.2	2364.8	2367.7	2357.2
145°	2434.4	2453.3	2468.5	2471.4	2461.0
147.5°	2524.7	2548.5	2559.9	2564.7	2554.2
150°	2618.0	2634.2	2644.6	2653.2	2644.6
152.5°	2700.7	2716.9	2730.2	2740.8	2730.2
155°	2783.6	2791.1	2799.8	2813.1	2804.6
157.5°	2854.9	2860.7	2865.4	2884.4	2871.1
160°	2918.7	2924.4	2927.3	2943.4	2932.0
162.5°	2977.7	2977.7	2980.5	2998.6	2985.3
165°	3028.1	3025.2	3025.2	3044.3	3031.0
167.5°	3073.8	3065.3	3065.3	3084.2	3070.9
170°	3108.1	3100.4	3097.7	3116.6	3100.4
172.5°	3131.8	3124.3	3121.4	3140.5	3124.3
175°	3150.9	3143.2	3137.6	3156.7	3140.5
177.5°	3161.3	3153.8	3148.0	3164.2	3148.0
180°	3156.7	3156.7	3156.7	3156.7	3156.7

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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	9.76	10.59	10.74	11.59	12.91	9.33	10.16	10.31	11.16	12.47
	3H	11.42	12.16	12.41	13.17	14.51	10.94	11.69	11.94	12.70	14.04
	4H	12.00	12.71	13.01	13.72	15.07	11.53	12.24	12.54	13.25	14.59
	6H	12.40	13.05	13.42	14.07	15.43	11.93	12.58	12.95	13.59	14.95
	8H	12.51	13.13	13.53	14.16	15.51	12.03	12.65	13.06	13.68	15.04
	12H	12.55	13.14	13.59	14.17	15.55	12.07	12.66	13.10	13.69	15.07
4H	2H	10.22	10.92	11.23	11.93	13.28	9.87	10.58	10.89	11.59	12.94
	3H	12.08	12.67	13.11	13.71	15.07	11.69	12.28	12.71	13.32	14.68
	4H	12.79	13.33	13.83	14.37	15.75	12.39	12.93	13.42	13.96	15.34
	6H	13.31	13.77	14.35	14.83	16.21	12.90	13.36	13.94	14.42	15.80
	8H	13.46	13.89	14.50	14.94	16.34	13.05	13.48	14.09	14.53	15.92
	12H	13.53	13.92	14.59	14.98	16.39	13.11	13.50	14.17	14.56	15.96
8H	4H	12.99	13.42	14.03	14.47	15.87	12.63	13.06	13.67	14.11	15.51
	6H	13.62	13.98	14.69	15.07	16.46	13.26	13.62	14.32	14.71	16.10
	8H	13.84	14.16	14.92	15.23	16.64	13.47	13.79	14.55	14.86	16.27
	12H	13.97	14.25	15.05	15.32	16.77	13.59	13.87	14.67	14.93	16.39
12H	4H	12.97	13.37	14.04	14.43	15.83	12.62	13.01	13.68	14.08	15.48
	6H	13.65	13.97	14.72	15.04	16.45	13.30	13.61	14.37	14.69	16.10
	8H	13.89	14.17	14.97	15.24	16.69	13.53	13.81	14.61	14.88	16.33