

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: P908078

Luminaire Tested: DFN2DIP-HX3F0-070D050US840-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P908078
REPORT IS A COMBINATION OF REPORTS P899237 AND P896089
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX3F0-070D050US840-FLLFLL
Description: 3 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

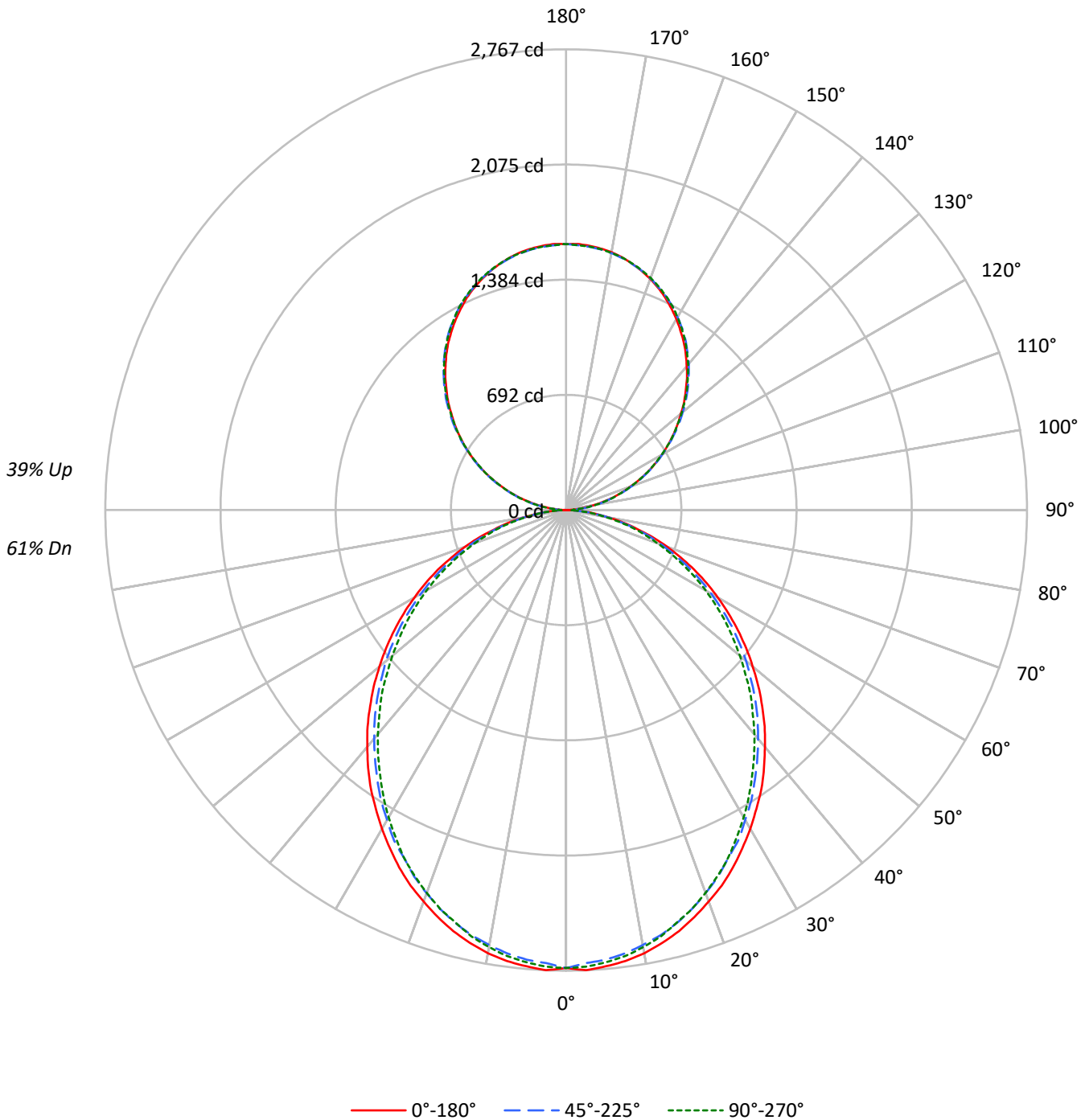
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 11467.0 lumens
Efficiency: N/A
Efficacy: 108.4 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): 105.8
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

TEST NUMBER: P908078
CATALOG NUMBER: DFN2DIP-HX3F0-070D050US840-FLLFLL

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	0
RCR																		
0	110	110	110	110	103	103	103	103	89	89	89	77	77	77	66	66	66	61
1	100	96	92	88	94	90	86	83	79	76	74	68	66	65	59	57	56	51
2	91	84	77	72	85	79	73	68	69	65	61	60	57	54	52	49	47	43
3	83	74	66	60	78	69	63	57	61	56	51	53	49	46	46	43	40	37
4	76	65	57	51	71	61	54	49	54	48	44	47	43	39	41	37	35	31
5	70	58	50	44	65	55	47	42	48	42	38	42	38	34	37	33	30	27
6	65	52	44	38	60	49	42	36	44	38	33	38	34	30	33	30	27	24
7	60	47	39	33	56	45	37	32	40	34	29	35	30	26	31	27	24	21
8	56	43	35	30	52	41	33	28	36	30	26	32	27	24	28	24	21	19
9	52	39	32	27	48	37	30	25	33	27	23	30	25	21	26	22	19	17
10	48	36	29	24	45	34	28	23	31	25	21	27	23	19	24	20	17	16

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3186	3186	3186
5°	3190	3140	3161
10°	3163	3095	3117
15°	3115	3042	3048
20°	3050	2969	2978
25°	2986	2882	2897
30°	2906	2801	2795
35°	2831	2706	2686
40°	2738	2610	2583
45°	2645	2513	2478
50°	2543	2411	2356
55°	2437	2294	2243
60°	2316	2155	2114
65°	2185	2011	1961
70°	2017	1835	1797
75°	1785	1623	1643
80°	1505	1354	1353
85°	1068	896	877

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 2645 cd/sqm



TEST NUMBER: P908078

CATALOG NUMBER: DFN2DIP-HX3F0-070D050US840-FLLFLL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	258.9	2.3
10°-20°	728.4	6.4
20°-30°	1070.5	9.3
30°-40°	1243.3	10.8
40°-50°	1241.7	10.8
50°-60°	1082.8	9.4
60°-70°	800.4	7.0
70°-80°	452.9	3.9
80°-90°	124.1	1.1
90°-100°	98.8	0.9
100°-110°	314.0	2.7
110°-120°	537.3	4.7
120°-130°	706.6	6.2
130°-140°	793.2	6.9
140°-150°	777.8	6.8
150°-160°	652.5	5.7
160°-170°	432.7	3.8
170°-180°	151.2	1.3
0°-30°	2057.8	17.9
0°-40°	3301.1	28.8
0°-60°	5625.6	49.1
0°-90°	7002.9	61.1
90°-120°	950.1	8.3
90°-150°	3227.7	28.1
90°-180°	4464.0	38.9
0°-180°	11467.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2751	2751	2751	2751	2751	
5°	2751	2740	2711	2732	2727	261
15°	2618	2603	2568	2579	2566	737
25°	2370	2349	2304	2309	2304	1090
35°	2045	2018	1976	1960	1947	1277
45°	1664	1645	1605	1576	1566	1284
55°	1259	1243	1211	1180	1166	1126
65°	849	833	807	783	770	840
75°	444	439	426	410	415	474
85°	108	106	103	95	93	121
90°	1	17	47	44	46	11
95°	70	84	86	86	84	78
105°	290	294	297	299	299	306
115°	539	547	544	543	539	533
125°	784	796	792	788	787	701
135°	1014	1029	1032	1031	1027	784
145°	1232	1241	1249	1250	1245	769
155°	1408	1412	1416	1423	1419	648
165°	1532	1530	1530	1540	1533	432
175°	1594	1590	1587	1597	1589	151
180°	1597	1597	1597	1597	1597	



TEST NUMBER: P908078

CATALOG NUMBER: DFN2DIP-HX3F0-070D050US840-FLLFLL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2750.6	2750.6	2750.6	2750.6	2750.6
2.5°	2766.6	2753.4	2724.2	2750.6	2745.5
5°	2750.6	2740.3	2711.1	2732.1	2727.0
7.5°	2732.1	2716.3	2687.2	2708.6	2703.2
10°	2703.2	2684.6	2652.9	2674.0	2666.1
12.5°	2663.3	2647.7	2616.0	2629.1	2623.7
15°	2618.5	2602.7	2568.2	2578.9	2565.7
17.5°	2562.8	2547.2	2512.6	2525.9	2512.6
20°	2501.9	2486.3	2449.2	2457.1	2446.7
22.5°	2441.3	2417.5	2383.0	2383.0	2377.6
25°	2369.9	2348.7	2303.9	2309.0	2303.9
27.5°	2290.4	2271.9	2237.7	2229.8	2216.6
30°	2211.3	2189.9	2150.4	2142.5	2131.8
32.5°	2126.5	2110.8	2068.4	2052.5	2041.7
35°	2044.6	2018.2	1975.8	1959.8	1946.6
37.5°	1952.0	1928.1	1885.7	1867.2	1854.0
40°	1856.8	1835.5	1793.1	1769.6	1758.9
42.5°	1764.2	1742.9	1700.8	1674.2	1658.4
45°	1663.8	1645.3	1605.4	1576.5	1565.8
47.5°	1565.8	1547.3	1504.9	1475.7	1460.1
50°	1462.6	1449.4	1412.3	1375.3	1362.1
52.5°	1362.1	1343.6	1309.4	1280.2	1261.6
55°	1259.1	1243.1	1211.4	1179.7	1166.5
57.5°	1155.9	1142.7	1108.1	1076.4	1065.8
60°	1052.6	1042.2	1005.2	976.0	968.2
62.5°	952.1	933.6	907.3	880.9	870.2
65°	849.2	833.1	806.8	782.9	769.7
67.5°	743.4	729.9	706.3	687.8	677.1
70°	645.4	634.8	610.9	592.4	582.0
72.5°	544.9	534.3	521.1	502.6	494.7
75°	444.2	439.2	425.7	410.0	415.4
77.5°	354.5	343.8	338.4	330.5	322.8
80°	264.6	261.9	256.5	248.6	243.3
82.5°	179.9	179.9	177.3	166.7	166.7
85°	108.4	105.8	103.3	95.1	92.6
87.5°	47.7	42.4	37.1	29.2	26.4
90°	1.4	17.4	47.2	44.3	45.7
92.5°	29.9	40.4	41.9	43.3	43.3
95°	70.3	83.8	86.1	86.1	83.8
97.5°	116.9	129.5	134.8	134.8	134.8
100°	170.9	182.0	185.8	185.8	184.4
102.5°	227.7	235.9	241.2	242.7	241.2
105°	289.8	293.7	296.6	298.9	298.9
107.5°	351.4	357.2	357.2	358.2	351.4
110°	411.1	418.9	418.9	418.9	415.0



TEST NUMBER: P908078

CATALOG NUMBER: DFN2DIP-HX3F0-070D050US840-FLLFLL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	475.6	483.8	482.4	478.6	475.6
115°	539.2	546.9	544.5	543.1	539.2
117.5°	602.3	612.9	606.1	602.3	598.4
120°	665.8	676.4	665.8	665.8	661.5
122.5°	723.6	737.1	730.3	726.5	723.6
125°	784.3	796.3	792.4	788.1	786.7
127.5°	843.4	858.4	853.1	847.3	843.4
130°	898.9	916.2	913.7	910.9	905.5
132.5°	961.0	974.4	975.4	968.7	964.8
135°	1014.4	1029.3	1032.2	1030.8	1026.9
137.5°	1074.1	1086.1	1088.5	1087.5	1081.8
140°	1126.5	1138.6	1145.3	1145.3	1140.0
142.5°	1180.4	1192.6	1196.4	1197.8	1192.6
145°	1231.5	1241.1	1248.8	1250.3	1245.0
147.5°	1277.3	1289.3	1295.1	1297.5	1292.1
150°	1324.4	1332.6	1337.9	1342.2	1337.9
152.5°	1366.3	1374.5	1381.2	1386.5	1381.2
155°	1408.2	1412.0	1416.3	1423.1	1418.8
157.5°	1444.3	1447.1	1449.6	1459.3	1452.5
160°	1476.5	1479.5	1480.9	1489.0	1483.3
162.5°	1506.4	1506.4	1507.8	1517.0	1510.3
165°	1532.0	1530.5	1530.5	1540.1	1533.4
167.5°	1555.0	1550.6	1550.6	1560.3	1553.6
170°	1572.4	1568.5	1567.1	1576.7	1568.5
172.5°	1584.4	1580.5	1579.1	1588.7	1580.5
175°	1594.1	1590.1	1587.3	1596.9	1588.7
177.5°	1599.3	1595.5	1592.6	1600.7	1592.6
180°	1596.9	1596.9	1596.9	1596.9	1596.9



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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	12.22	13.19	13.07	14.07	15.17	11.79	12.76	12.64	13.64	14.74
	3H	13.88	14.75	14.75	15.64	16.77	13.41	14.28	14.28	15.17	16.30
	4H	14.46	15.29	15.35	16.18	17.32	14.00	14.82	14.88	15.71	16.85
	6H	14.86	15.62	15.76	16.52	17.68	14.39	15.15	15.29	16.05	17.21
	8H	14.97	15.69	15.87	16.61	17.76	14.50	15.22	15.40	16.14	17.29
	12H	15.02	15.71	15.93	16.62	17.80	14.54	15.23	15.45	16.14	17.32
4H	2H	12.69	13.51	13.58	14.41	15.55	12.35	13.17	13.23	14.06	15.20
	3H	14.56	15.24	15.46	16.17	17.32	14.17	14.85	15.07	15.78	16.93
	4H	15.27	15.90	16.18	16.82	18.00	14.87	15.49	15.78	16.41	17.60
	6H	15.78	16.32	16.71	17.27	18.45	15.38	15.92	16.30	16.86	18.05
	8H	15.93	16.44	16.86	17.38	18.57	15.52	16.03	16.45	16.97	18.16
	12H	16.01	16.46	16.95	17.42	18.62	15.59	16.05	16.54	17.00	18.20
8H	4H	15.47	15.98	16.40	16.92	18.11	15.11	15.62	16.04	16.56	17.75
	6H	16.10	16.52	17.05	17.50	18.69	15.74	16.16	16.69	17.14	18.33
	8H	16.31	16.68	17.28	17.66	18.87	15.95	16.32	16.91	17.29	18.50
	12H	16.45	16.77	17.41	17.74	19.00	16.07	16.39	17.03	17.36	18.62
12H	4H	15.46	15.92	16.41	16.87	18.08	15.11	15.57	16.06	16.52	17.73
	6H	16.13	16.50	17.09	17.47	18.68	15.78	16.15	16.74	17.12	18.33
	8H	16.37	16.69	17.34	17.66	18.92	16.01	16.34	16.98	17.30	18.57