

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: P908140

Luminaire Tested: DFN2DIP-HX3F0-090D090US840-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P908140
REPORT IS A COMBINATION OF REPORTS P899297 AND P896089
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX3F0-090D090US840-FLLFLL
Description: 3 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

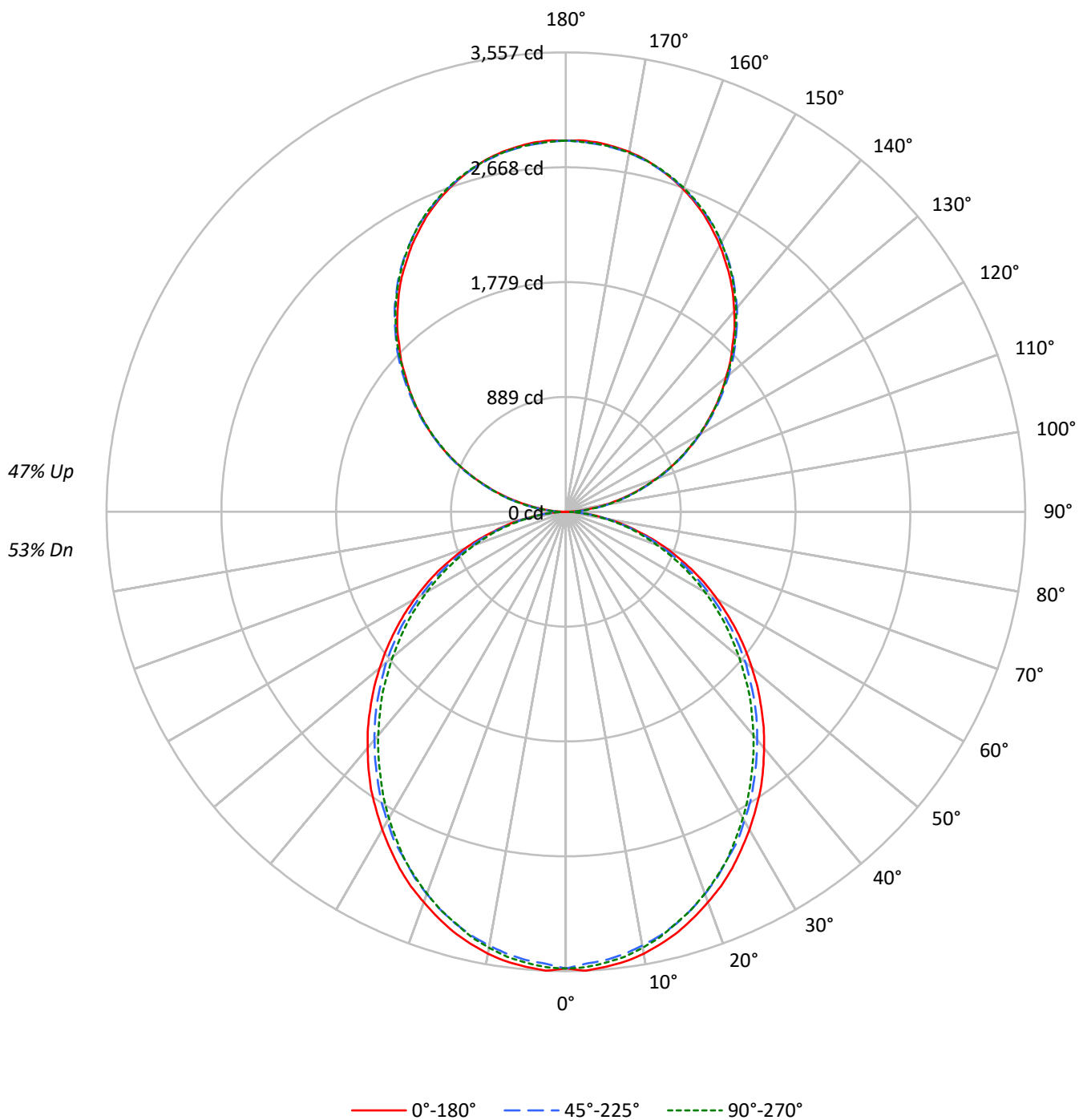
Lumens per Lamp: N/A
Luminaire Lumens: 17041.5 lumens
Efficiency: N/A
Efficacy: 104.0 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 2.84' x L: 3.28' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 163.8
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9968
Total Harmonic Distortion (THDi): 0.064
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P908140

CATALOG NUMBER: DFN2DIP-HX3F0-090D090US840-FLLFLL

Luminous Intensity Polar Plot



TEST NUMBER: P908140

CATALOG NUMBER: DFN2DIP-HX3F0-090D090US840-FLLFL

COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20				20				20				20				20
RC	80				70				50				30				10
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10
RCR																	
0	108	108	108	108	100	100	100	100	85	85	85	71	71	71	59	59	59
1	98	94	90	87	91	87	84	81	74	72	70	63	61	59	52	51	50
2	90	82	76	71	83	76	71	66	65	61	58	55	52	50	46	44	42
3	82	72	65	59	75	67	61	55	58	53	49	49	45	42	41	38	36
4	75	64	56	50	69	60	52	47	51	46	41	43	39	36	36	33	31
5	69	57	49	43	63	53	46	40	46	40	36	39	35	31	33	29	27
6	63	51	43	37	58	48	40	35	41	36	31	35	31	27	30	26	24
7	59	46	38	33	54	43	36	31	37	32	28	32	28	24	27	24	21
8	54	42	34	29	50	39	32	27	34	29	24	29	25	22	25	21	19
9	51	38	31	26	47	36	29	24	31	26	22	27	23	19	23	20	17
10	47	35	28	23	44	33	26	22	29	23	20	25	21	18	21	18	15

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	4096	4096	4096
5°	4101	4037	4064
10°	4066	3979	4007
15°	4005	3911	3919
20°	3922	3817	3829
25°	3840	3705	3725
30°	3737	3601	3593
35°	3640	3479	3454
40°	3520	3355	3321
45°	3400	3231	3186
50°	3270	3100	3029
55°	3133	2949	2884
60°	2978	2771	2718
65°	2809	2585	2522
70°	2593	2359	2311
75°	2295	2087	2112
80°	1934	1740	1739
85°	1372	1152	1128

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 3400 cd/sqm

TEST NUMBER: P908140

CATALOG NUMBER: DFN2DIP-HX3F0-090D090US840-FLLFLL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	332.9	2.0
10°-20°	936.5	5.5
20°-30°	1376.3	8.1
30°-40°	1598.5	9.4
40°-50°	1596.5	9.4
50°-60°	1392.1	8.2
60°-70°	1029.1	6.0
70°-80°	582.2	3.4
80°-90°	161.8	0.9
90°-100°	177.9	1.0
100°-110°	565.2	3.3
110°-120°	967.2	5.7
120°-130°	1272.0	7.5
130°-140°	1427.7	8.4
140°-150°	1400.0	8.2
150°-160°	1174.4	6.9
160°-170°	778.9	4.6
170°-180°	272.2	1.6
0°-30°	2645.7	15.5
0°-40°	4244.2	24.9
0°-60°	7232.9	42.4
0°-90°	9006.1	52.8
90°-120°	1710.2	10.0
90°-150°	5809.9	34.1
90°-180°	8035.0	47.1
0°-180°	17041.5	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3536	3536	3536	3536	3536	
5°	3536	3523	3486	3513	3506	336
15°	3367	3346	3302	3316	3299	948
25°	3047	3020	2962	2969	2962	1402
35°	2629	2595	2540	2520	2503	1642
45°	2139	2115	2064	2027	2013	1651
55°	1619	1598	1558	1517	1500	1447
65°	1092	1071	1037	1007	990	1079
75°	571	565	547	527	534	610
85°	139	136	133	122	119	155
90°	3	31	85	80	82	16
95°	126	151	155	155	151	141
105°	522	529	534	538	538	551
115°	971	984	980	978	971	960
125°	1412	1433	1426	1419	1416	1261
135°	1826	1853	1858	1855	1848	1411
145°	2217	2234	2248	2250	2241	1385
155°	2535	2542	2550	2562	2554	1167
165°	2757	2755	2755	2772	2760	778
175°	2869	2862	2857	2874	2860	273
180°	2874	2874	2874	2874	2874	

TEST NUMBER: P908140

CATALOG NUMBER: DFN2DIP-HX3F0-090D090US840-FLLFLL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3536.4	3536.4	3536.4	3536.4	3536.4
2.5°	3557.0	3540.1	3502.6	3536.4	3530.0
5°	3536.4	3523.1	3485.7	3512.7	3506.2
7.5°	3512.7	3492.5	3455.0	3482.4	3475.6
10°	3475.6	3451.7	3410.9	3438.0	3427.9
12.5°	3424.3	3404.1	3363.4	3380.2	3373.5
15°	3366.6	3346.4	3302.0	3315.7	3298.7
17.5°	3295.1	3274.9	3230.6	3247.5	3230.6
20°	3216.8	3196.6	3149.0	3159.1	3145.7
22.5°	3138.9	3108.3	3063.8	3063.8	3057.0
25°	3046.9	3019.8	2962.1	2968.6	2962.1
27.5°	2944.8	2920.9	2877.0	2866.9	2849.9
30°	2843.1	2815.6	2764.7	2754.6	2741.0
32.5°	2734.1	2713.9	2659.4	2638.9	2625.1
35°	2628.8	2594.8	2540.3	2519.8	2502.9
37.5°	2509.7	2479.0	2424.5	2400.8	2383.8
40°	2387.3	2360.0	2305.4	2275.1	2261.5
42.5°	2268.3	2240.9	2186.8	2152.5	2132.3
45°	2139.1	2115.4	2064.1	2026.9	2013.3
47.5°	2013.3	1989.4	1934.9	1897.4	1877.2
50°	1880.5	1863.5	1815.8	1768.3	1751.3
52.5°	1751.3	1727.5	1683.4	1646.0	1622.1
55°	1618.9	1598.3	1557.5	1516.8	1499.9
57.5°	1486.1	1469.2	1424.8	1384.0	1370.3
60°	1353.3	1340.0	1292.3	1254.9	1244.8
62.5°	1224.2	1200.3	1166.4	1132.6	1118.8
65°	1091.8	1071.2	1037.2	1006.6	989.7
67.5°	955.7	938.5	908.1	884.3	870.6
70°	829.8	816.1	785.5	761.6	748.3
72.5°	700.6	686.9	669.9	646.2	636.1
75°	571.2	564.6	547.3	527.1	534.0
77.5°	455.7	442.0	435.2	425.1	415.0
80°	340.2	336.6	329.7	319.6	312.9
82.5°	231.3	231.3	228.0	214.3	214.3
85°	139.3	136.0	132.8	122.3	119.1
87.5°	61.3	54.4	47.7	37.6	33.9
90°	2.6	31.2	84.9	79.7	82.3
92.5°	53.7	72.8	75.4	78.0	78.0
95°	126.5	150.8	155.1	155.1	150.8
97.5°	210.6	233.1	242.7	242.7	242.7
100°	307.6	327.6	334.5	334.5	331.9
102.5°	409.9	424.6	434.1	436.8	434.1
105°	521.7	528.6	533.8	538.2	538.2
107.5°	632.6	643.0	643.0	644.7	632.6
110°	740.0	754.0	754.0	754.0	747.0

TEST NUMBER: P908140

CATALOG NUMBER: DFN2DIP-HX3F0-090D090US840-FLLFLL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	856.2	870.9	868.3	861.4	856.2
115°	970.6	984.4	980.1	977.5	970.6
117.5°	1084.1	1103.2	1091.1	1084.1	1077.1
120°	1198.5	1217.5	1198.5	1198.5	1190.6
122.5°	1302.4	1326.8	1314.6	1307.7	1302.4
125°	1411.7	1433.3	1426.4	1418.6	1416.0
127.5°	1518.2	1545.1	1535.6	1525.2	1518.2
130°	1617.9	1649.1	1644.8	1639.5	1630.0
132.5°	1729.7	1753.9	1755.7	1743.5	1736.7
135°	1825.8	1852.7	1858.0	1855.3	1848.5
137.5°	1933.3	1955.0	1959.3	1957.6	1947.2
140°	2027.8	2049.4	2061.5	2061.5	2052.0
142.5°	2124.9	2146.5	2153.4	2156.1	2146.5
145°	2216.8	2234.0	2247.9	2250.5	2241.0
147.5°	2299.1	2320.7	2331.1	2335.4	2325.9
150°	2384.0	2398.7	2408.2	2416.0	2408.2
152.5°	2459.3	2474.1	2486.2	2495.8	2486.2
155°	2534.8	2541.6	2549.5	2561.6	2553.8
157.5°	2599.7	2604.9	2609.3	2626.6	2614.4
160°	2657.8	2663.0	2665.6	2680.3	2669.9
162.5°	2711.5	2711.5	2714.1	2730.6	2718.5
165°	2757.4	2754.8	2754.8	2772.2	2760.1
167.5°	2799.0	2791.3	2791.3	2808.5	2796.4
170°	2830.2	2823.3	2820.8	2838.0	2823.3
172.5°	2851.9	2845.0	2842.4	2859.7	2845.0
175°	2869.2	2862.3	2857.1	2874.5	2859.7
177.5°	2878.7	2871.9	2866.6	2881.3	2866.6
180°	2874.5	2874.5	2874.5	2874.5	2874.5

TEST NUMBER: P908140

CATALOG NUMBER: DFN2DIP-HX3F0-090D090US840-FLLFLL

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	12.39	13.27	13.32	14.22	15.45	11.96	12.84	12.89	13.79	15.02
	3H	14.04	14.84	14.98	15.80	17.05	13.57	14.37	14.52	15.33	16.58
	4H	14.62	15.38	15.58	16.34	17.60	14.16	14.91	15.11	15.87	17.13
	6H	15.02	15.71	15.99	16.68	17.96	14.55	15.24	15.52	16.21	17.49
	8H	15.12	15.78	16.10	16.77	18.04	14.65	15.31	15.63	16.30	17.57
	12H	15.17	15.80	16.15	16.78	18.07	14.69	15.32	15.67	16.30	17.60
4H	2H	12.85	13.60	13.81	14.56	15.83	12.50	13.26	13.47	14.22	15.48
	3H	14.71	15.34	15.68	16.33	17.61	14.32	14.95	15.29	15.94	17.22
	4H	15.42	15.99	16.40	16.98	18.28	15.01	15.59	16.00	16.58	17.88
	6H	15.93	16.42	16.92	17.43	18.73	15.52	16.02	16.52	17.03	18.33
	8H	16.07	16.54	17.07	17.54	18.85	15.67	16.13	16.66	17.13	18.44
	12H	16.14	16.56	17.16	17.58	18.90	15.73	16.14	16.74	17.16	18.48
8H	4H	15.61	16.07	16.61	17.08	18.39	15.25	15.72	16.25	16.72	18.03
	6H	16.24	16.62	17.26	17.66	18.97	15.88	16.26	16.90	17.30	18.62
	8H	16.45	16.79	17.48	17.82	19.15	16.09	16.42	17.12	17.46	18.79
	12H	16.58	16.88	17.61	17.90	19.28	16.20	16.50	17.23	17.52	18.90
12H	4H	15.60	16.02	16.61	17.04	18.35	15.25	15.67	16.26	16.69	18.00
	6H	16.26	16.60	17.29	17.63	18.96	15.92	16.25	16.94	17.29	18.62
	8H	16.50	16.80	17.53	17.82	19.20	16.15	16.45	17.18	17.47	18.85