

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: P921738

Luminaire Tested: DFN2DIP-HX3F0-080D040US940-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P921738
REPORT IS A COMBINATION OF REPORTS P899225 AND P896089
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX3F0-080D040US940-FLLFLL
Description: 3 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

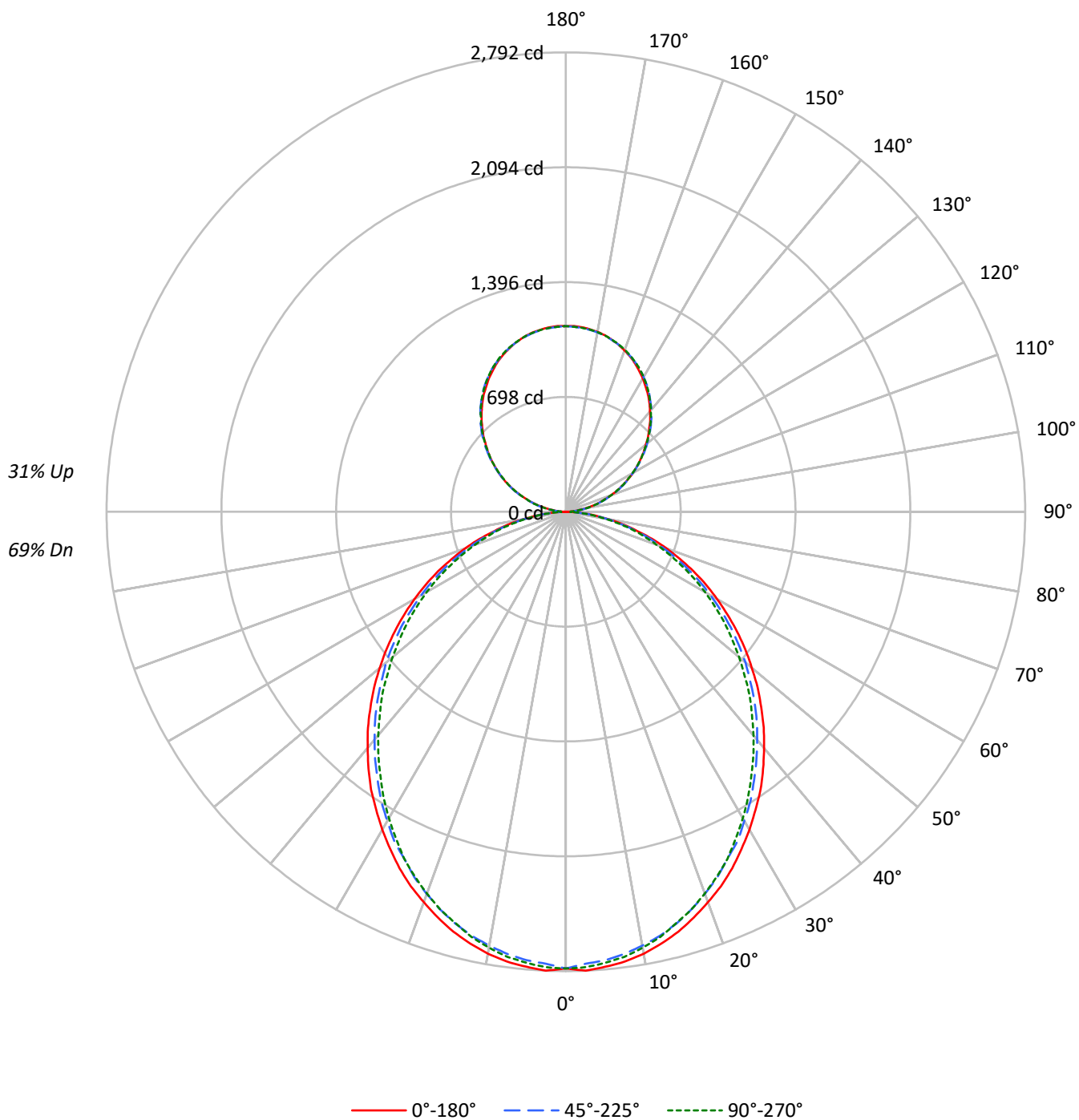
Lumens per Lamp: N/A
Luminaire Lumens: 10219.0 lumens
Efficiency: N/A
Efficacy: 93.2 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 2.84' x L: 3.28' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 109.7
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
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	112	112	112	112	106	106	106	106	94	94	94	83	83	83	74	74	74
1	102	98	94	90	96	92	89	86	83	80	77	74	71	70	65	64	62
2	93	85	79	74	88	81	75	70	72	68	64	65	61	58	57	55	52
3	85	75	67	61	80	71	64	59	64	58	54	57	53	49	51	48	45
4	78	67	58	52	73	63	56	50	57	51	46	51	46	42	46	42	39
5	71	59	51	45	67	56	49	43	51	45	40	46	41	37	41	37	34
6	66	53	45	39	62	51	43	38	46	40	35	41	36	32	37	33	30
7	61	48	40	34	58	46	39	33	42	35	31	38	33	29	34	30	26
8	57	44	36	31	54	42	35	30	38	32	28	35	29	26	31	27	24
9	53	40	33	27	50	39	31	26	35	29	25	32	27	23	29	25	21
10	50	37	30	25	47	36	29	24	32	27	22	30	25	21	27	23	20

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3215	3215	3215
5°	3219	3168	3190
10°	3191	3123	3145
15°	3143	3070	3076
20°	3078	2996	3005
25°	3014	2908	2924
30°	2933	2827	2820
35°	2856	2731	2711
40°	2763	2633	2607
45°	2669	2536	2500
50°	2566	2433	2377
55°	2459	2315	2263
60°	2337	2175	2133
65°	2204	2029	1979
70°	2035	1851	1813
75°	1801	1638	1658
80°	1519	1367	1365
85°	1077	904	886

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2669 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	261.3	2.6
10°-20°	735.1	7.2
20°-30°	1080.3	10.6
30°-40°	1254.7	12.3
40°-50°	1253.1	12.3
50°-60°	1092.7	10.7
60°-70°	807.7	7.9
70°-80°	457.0	4.5
80°-90°	123.8	1.2
90°-100°	69.8	0.7
100°-110°	221.8	2.2
110°-120°	379.5	3.7
120°-130°	499.2	4.9
130°-140°	560.3	5.5
140°-150°	549.4	5.4
150°-160°	460.9	4.5
160°-170°	305.7	3.0
170°-180°	106.8	1.0
0°-30°	2076.6	20.3
0°-40°	3331.3	32.6
0°-60°	5677.0	55.6
0°-90°	7065.6	69.1
90°-120°	671.2	6.6
90°-150°	2280.1	22.3
90°-180°	3153.0	30.9
0°-180°	10219.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2776	2776	2776	2776	2776	
5°	2776	2765	2736	2757	2752	263
15°	2642	2626	2592	2602	2589	744
25°	2392	2370	2325	2330	2325	1100
35°	2063	2037	1994	1978	1964	1288
45°	1679	1660	1620	1591	1580	1296
55°	1271	1254	1222	1190	1177	1136
65°	857	841	814	790	777	847
75°	448	443	430	414	419	479
85°	109	107	104	96	94	122
90°	1	12	33	31	32	10
95°	50	59	61	61	59	55
105°	205	207	210	211	211	216
115°	381	386	385	384	381	377
125°	554	562	560	557	556	495
135°	717	727	729	728	725	554
145°	870	877	882	883	880	544
155°	995	998	1000	1005	1002	458
165°	1082	1081	1081	1088	1083	305
175°	1126	1123	1121	1128	1122	107
180°	1128	1128	1128	1128	1128	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2775.7	2775.7	2775.7	2775.7	2775.7
2.5°	2791.9	2778.6	2749.1	2775.7	2770.6
5°	2775.7	2765.3	2735.9	2757.1	2752.0
7.5°	2757.1	2741.2	2711.8	2733.3	2727.9
10°	2727.9	2709.2	2677.2	2698.4	2690.6
12.5°	2687.7	2671.8	2639.8	2653.1	2647.8
15°	2642.4	2626.5	2591.7	2602.5	2589.2
17.5°	2586.3	2570.4	2535.6	2549.0	2535.6
20°	2524.9	2509.0	2471.6	2479.6	2469.1
22.5°	2463.7	2439.6	2404.8	2404.8	2399.4
25°	2391.5	2370.3	2325.0	2330.0	2325.0
27.5°	2311.3	2292.7	2258.1	2250.1	2236.9
30°	2231.5	2209.9	2170.1	2162.1	2151.3
32.5°	2146.0	2130.1	2087.3	2071.2	2060.5
35°	2063.2	2036.7	1993.9	1977.7	1964.4
37.5°	1969.8	1945.7	1903.0	1884.3	1871.0
40°	1873.8	1852.3	1809.5	1785.7	1774.9
42.5°	1780.4	1758.8	1716.4	1689.4	1673.7
45°	1679.0	1660.3	1620.1	1590.9	1580.2
47.5°	1580.2	1561.5	1518.7	1489.2	1473.4
50°	1476.0	1462.7	1425.2	1387.9	1374.6
52.5°	1374.6	1355.8	1321.3	1291.9	1273.2
55°	1270.6	1254.5	1222.5	1190.5	1177.1
57.5°	1166.4	1153.2	1118.3	1086.3	1075.5
60°	1062.2	1051.8	1014.3	984.9	977.0
62.5°	960.8	942.2	915.5	888.9	878.2
65°	856.9	840.8	814.1	790.1	776.8
67.5°	750.1	736.6	712.7	694.1	683.3
70°	651.3	640.5	616.5	597.8	587.3
72.5°	549.9	539.2	525.8	507.2	499.3
75°	448.3	443.2	429.6	413.8	419.1
77.5°	357.7	346.9	341.5	333.6	325.7
80°	267.1	264.2	258.9	250.9	245.5
82.5°	181.6	181.6	179.0	168.2	168.2
85°	109.3	106.7	104.2	96.0	93.5
87.5°	48.2	42.8	37.4	29.4	26.7
90°	1.0	12.2	33.3	31.3	32.3
92.5°	21.0	28.5	29.6	30.6	30.6
95°	49.7	59.2	60.9	60.9	59.2
97.5°	82.7	91.5	95.2	95.2	95.2
100°	120.7	128.6	131.3	131.3	130.3
102.5°	160.9	166.7	170.4	171.4	170.4
105°	204.7	207.4	209.5	211.2	211.2
107.5°	248.3	252.4	252.4	253.0	248.3
110°	290.4	295.9	295.9	295.9	293.2

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	336.0	341.8	340.7	338.0	336.0
115°	380.8	386.4	384.6	383.6	380.8
117.5°	425.4	432.9	428.2	425.4	422.8
120°	470.4	477.8	470.4	470.4	467.3
122.5°	511.1	520.7	515.9	513.2	511.1
125°	554.0	562.5	559.8	556.7	555.7
127.5°	595.8	606.4	602.6	598.5	595.8
130°	634.9	647.2	645.5	643.5	639.7
132.5°	678.8	688.3	689.0	684.2	681.5
135°	716.6	727.1	729.2	728.1	725.4
137.5°	758.8	767.2	768.9	768.2	764.2
140°	795.8	804.3	809.0	809.0	805.3
142.5°	833.9	842.4	845.1	846.1	842.4
145°	870.0	876.7	882.2	883.2	879.5
147.5°	902.2	910.7	914.8	916.5	912.8
150°	935.6	941.4	945.1	948.2	945.1
152.5°	965.2	970.9	975.7	979.5	975.7
155°	994.7	997.5	1000.5	1005.3	1002.2
157.5°	1020.3	1022.3	1024.0	1030.8	1026.0
160°	1043.0	1045.1	1046.1	1051.9	1047.8
162.5°	1064.1	1064.1	1065.1	1071.6	1066.8
165°	1082.2	1081.1	1081.1	1087.9	1083.2
167.5°	1098.5	1095.4	1095.4	1102.2	1097.4
170°	1110.7	1108.0	1107.0	1113.7	1108.0
172.5°	1119.2	1116.5	1115.4	1122.3	1116.5
175°	1126.1	1123.3	1121.2	1128.0	1122.3
177.5°	1129.8	1127.0	1125.0	1130.8	1125.0
180°	1128.0	1128.0	1128.0	1128.0	1128.0

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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	12.89	13.95	13.66	14.75	15.72	12.46	13.52	13.23	14.32	15.29
	3H	14.56	15.51	15.34	16.32	17.32	14.09	15.04	14.87	15.85	16.85
	4H	15.15	16.05	15.95	16.86	17.87	14.68	15.58	15.48	16.40	17.41
	6H	15.55	16.39	16.37	17.21	18.23	15.08	15.92	15.90	16.74	17.76
	8H	15.66	16.45	16.49	17.29	18.32	15.19	15.98	16.02	16.83	17.85
	12H	15.71	16.47	16.54	17.30	18.35	15.24	15.99	16.07	16.83	17.88
4H	2H	13.37	14.27	14.18	15.09	16.10	13.03	13.93	13.84	14.75	15.76
	3H	15.25	16.00	16.07	16.85	17.87	14.86	15.61	15.68	16.46	17.48
	4H	15.96	16.65	16.80	17.50	18.55	15.56	16.25	16.40	17.09	18.15
	6H	16.48	17.08	17.33	17.95	19.01	16.08	16.67	16.93	17.54	18.60
	8H	16.63	17.19	17.49	18.05	19.13	16.23	16.78	17.08	17.65	18.72
	12H	16.71	17.21	17.59	18.10	19.18	16.30	16.80	17.17	17.68	18.76
8H	4H	16.17	16.73	17.03	17.59	18.66	15.82	16.37	16.67	17.24	18.31
	6H	16.80	17.26	17.69	18.17	19.24	16.44	16.90	17.33	17.81	18.88
	8H	17.02	17.43	17.91	18.33	19.42	16.66	17.06	17.55	17.97	19.05
	12H	17.16	17.52	18.05	18.41	19.55	16.78	17.14	17.67	18.03	19.17
12H	4H	16.17	16.67	17.04	17.55	18.63	15.82	16.32	16.69	17.20	18.28
	6H	16.83	17.24	17.73	18.14	19.23	16.49	16.89	17.38	17.80	18.88
	8H	17.08	17.44	17.98	18.33	19.47	16.73	17.09	17.62	17.98	19.12