

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: P908223

Luminaire Tested: DFN2DIP-HX4F0-080D080US840-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P908223
REPORT IS A COMBINATION OF REPORTS P899380 AND P896188
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-080D080US840-RLLFLL
Description: 4 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

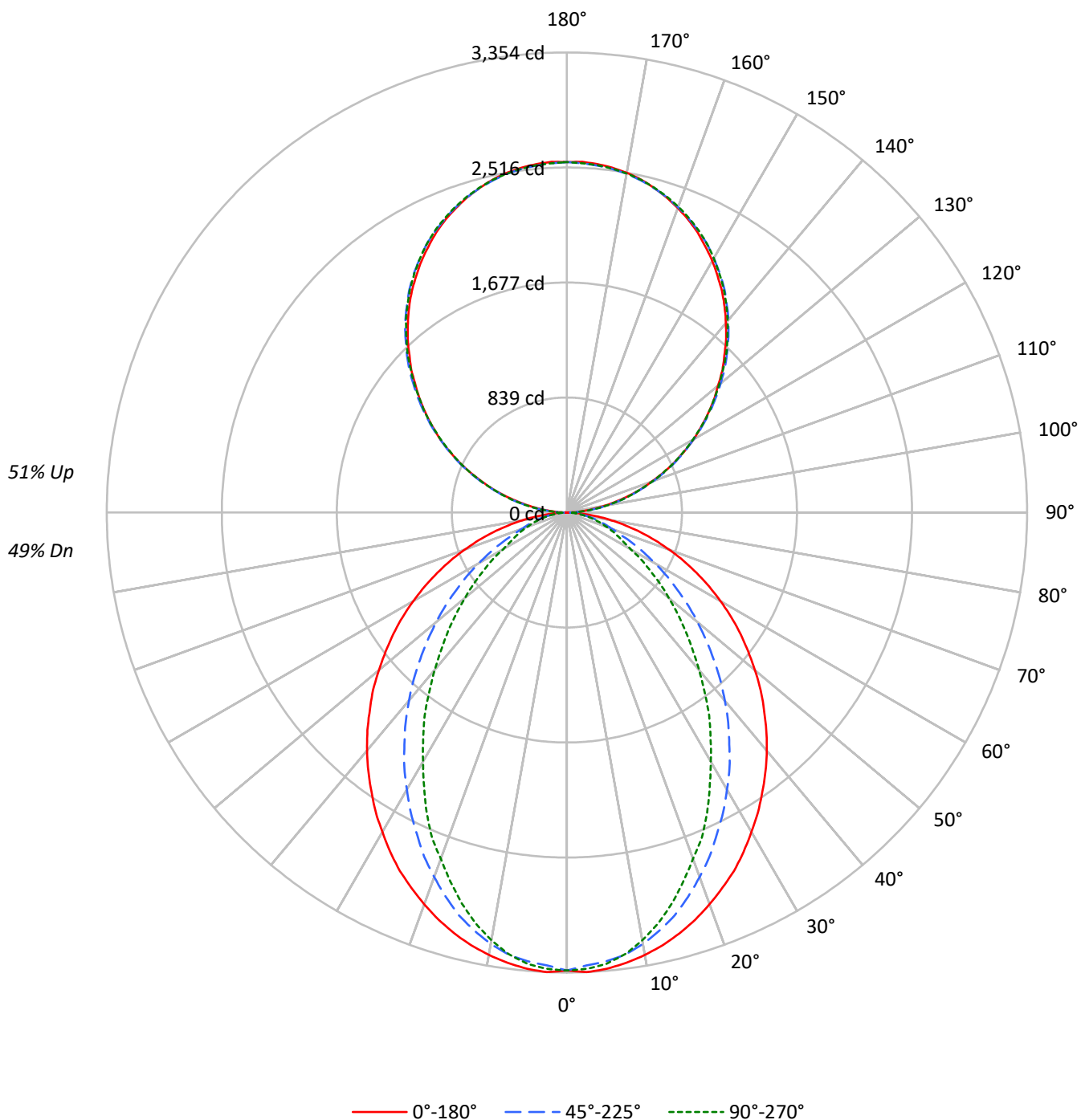
Lumens per Lamp: N/A
Luminaire Lumens: 14016.9 lumens
Efficiency: N/A
Efficacy: 114.9 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 122
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9613
Total Harmonic Distortion (THDi): 0.083
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	107	107	107	107	99	99	99	99	83	83	83	68	68	68	55	55	55
1	98	94	90	87	90	87	84	81	73	71	69	61	59	58	50	49	48
2	90	83	77	72	82	76	71	67	65	61	58	54	51	49	44	42	41
3	82	73	66	60	75	68	61	57	58	53	49	48	45	42	40	37	35
4	75	65	57	51	69	60	54	48	51	46	42	43	40	36	36	33	31
5	69	58	50	44	64	54	47	42	46	41	37	39	35	32	32	29	27
6	64	52	44	39	59	49	42	37	42	36	32	35	31	28	30	26	24
7	59	47	40	34	55	44	37	32	38	33	29	32	28	25	27	24	22
8	55	43	36	30	51	40	33	29	35	29	26	30	26	23	25	22	20
9	51	39	32	27	47	37	30	26	32	27	23	27	23	20	23	20	18
10	48	36	29	24	44	34	28	23	30	24	21	25	21	19	22	18	16

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2483	2483	2483
5°	2487	2444	2459
10°	2462	2396	2379
15°	2429	2317	2256
20°	2384	2208	2104
25°	2338	2086	1957
30°	2277	1961	1772
35°	2217	1826	1608
40°	2156	1686	1421
45°	2084	1532	1252
50°	2011	1376	1086
55°	1934	1209	926
60°	1845	1034	763
65°	1743	856	686
70°	1619	691	622
75°	1463	610	566
80°	1238	512	491
85°	866	343	370

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2084 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	312.9	2.2
10°-20°	859.1	6.1
20°-30°	1206.1	8.6
30°-40°	1314.7	9.4
40°-50°	1208.4	8.6
50°-60°	949.0	6.8
60°-70°	617.7	4.4
70°-80°	318.0	2.3
80°-90°	88.4	0.6
90°-100°	158.1	1.1
100°-110°	502.4	3.6
110°-120°	859.7	6.1
120°-130°	1130.6	8.1
130°-140°	1269.1	9.1
140°-150°	1244.5	8.9
150°-160°	1043.9	7.4
160°-170°	692.3	4.9
170°-180°	242.0	1.7
0°-30°	2378.1	17.0
0°-40°	3692.9	26.3
0°-60°	5850.2	41.7
0°-90°	6874.4	49.0
90°-120°	1520.1	10.8
90°-150°	5164.3	36.8
90°-180°	7143.0	51.0
0°-180°	14016.9	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3339	3339	3339	3339	3339	
5°	3339	3324	3284	3312	3303	317
15°	3176	3142	3040	2982	2952	895
25°	2883	2786	2587	2463	2417	1326
35°	2484	2330	2064	1874	1807	1555
45°	2031	1828	1511	1296	1224	1568
55°	1544	1308	982	801	744	1380
65°	1043	798	526	423	414	1034
75°	556	344	242	221	218	588
85°	130	66	57	57	57	149
90°	2	28	76	71	73	14
95°	112	134	138	138	134	125
105°	464	470	474	478	478	489
115°	863	875	871	869	863	853
125°	1255	1274	1268	1261	1259	1121
135°	1623	1647	1652	1649	1643	1254
145°	1970	1986	1998	2000	1992	1231
155°	2253	2259	2266	2277	2270	1037
165°	2451	2449	2449	2464	2453	691
175°	2550	2544	2540	2555	2542	242
180°	2555	2555	2555	2555	2555	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3339.0	3339.0	3339.0	3339.0	3339.0
2.5°	3354.1	3339.0	3305.7	3336.1	3330.0
5°	3339.0	3324.0	3284.5	3311.8	3302.8
7.5°	3311.8	3293.8	3251.5	3263.4	3248.2
10°	3275.5	3254.4	3194.1	3184.8	3166.8
12.5°	3230.4	3203.1	3121.3	3103.3	3070.0
15°	3175.8	3142.5	3039.9	2982.5	2952.3
17.5°	3112.3	3063.9	2937.0	2870.6	2822.2
20°	3039.9	2979.3	2828.3	2753.0	2686.2
22.5°	2961.3	2891.7	2716.4	2613.8	2568.6
25°	2882.8	2786.0	2586.6	2462.9	2417.3
27.5°	2789.1	2686.2	2465.7	2323.7	2254.1
30°	2689.5	2574.3	2332.7	2178.8	2097.0
32.5°	2592.6	2453.6	2206.1	2024.6	1948.9
35°	2484.0	2329.8	2064.0	1873.6	1806.9
37.5°	2378.1	2211.8	1931.0	1722.2	1646.9
40°	2266.3	2085.2	1791.8	1577.3	1498.7
42.5°	2151.5	1958.2	1652.9	1429.3	1353.8
45°	2030.6	1828.1	1511.0	1296.2	1223.8
47.5°	1915.9	1701.4	1375.0	1160.2	1093.9
50°	1788.9	1574.5	1242.0	1033.3	970.1
52.5°	1664.9	1438.1	1115.0	915.6	858.3
55°	1544.0	1308.4	982.0	800.8	743.5
57.5°	1420.3	1178.5	864.3	695.1	646.6
60°	1293.2	1051.6	740.2	586.3	538.0
62.5°	1169.5	927.8	634.5	489.6	465.5
65°	1042.6	797.6	525.7	423.2	413.8
67.5°	921.7	676.8	423.2	371.5	362.6
70°	794.8	559.2	350.4	320.2	308.1
72.5°	673.9	450.1	293.1	269.0	262.9
75°	555.9	344.4	241.8	220.6	217.7
77.5°	438.3	244.6	190.5	178.2	172.2
80°	329.2	175.4	144.9	133.0	133.0
82.5°	229.5	118.0	99.7	93.6	93.6
85°	129.9	66.3	57.4	57.4	57.4
87.5°	48.4	24.0	24.0	21.2	21.2
90°	2.3	27.8	75.5	70.9	73.2
92.5°	47.8	64.7	67.1	69.3	69.3
95°	112.5	134.0	137.8	137.8	134.0
97.5°	187.2	207.2	215.7	215.7	215.7
100°	273.5	291.1	297.3	297.3	295.0
102.5°	364.4	377.5	385.9	388.2	385.9
105°	463.7	469.9	474.5	478.4	478.4
107.5°	562.3	571.6	571.6	573.1	562.3
110°	657.8	670.1	670.1	670.1	664.0

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	761.0	774.2	771.8	765.7	761.0
115°	862.7	875.0	871.2	868.9	862.7
117.5°	963.6	980.6	969.8	963.6	957.5
120°	1065.3	1082.3	1065.3	1065.3	1058.3
122.5°	1157.7	1179.3	1168.5	1162.4	1157.7
125°	1254.8	1274.0	1267.9	1260.9	1258.7
127.5°	1349.6	1373.4	1364.9	1355.7	1349.6
130°	1438.1	1465.8	1462.0	1457.4	1449.0
132.5°	1537.5	1559.0	1560.6	1549.8	1543.7
135°	1623.0	1646.9	1651.5	1649.2	1643.1
137.5°	1718.5	1737.8	1741.6	1740.1	1730.8
140°	1802.5	1821.7	1832.5	1832.5	1824.0
142.5°	1888.8	1908.0	1914.2	1916.5	1908.0
145°	1970.4	1985.8	1998.1	2000.4	1992.0
147.5°	2043.6	2062.9	2072.0	2076.0	2067.5
150°	2119.1	2132.1	2140.6	2147.6	2140.6
152.5°	2186.1	2199.2	2210.0	2218.5	2210.0
155°	2253.1	2259.3	2266.2	2276.9	2270.1
157.5°	2310.9	2315.5	2319.4	2334.7	2324.0
160°	2362.5	2367.1	2369.4	2382.5	2373.3
162.5°	2410.2	2410.2	2412.6	2427.2	2416.4
165°	2451.0	2448.7	2448.7	2464.2	2453.4
167.5°	2488.0	2481.1	2481.1	2496.5	2485.7
170°	2515.8	2509.6	2507.3	2522.7	2509.6
172.5°	2535.1	2528.9	2526.6	2541.9	2528.9
175°	2550.4	2544.3	2539.6	2555.1	2541.9
177.5°	2558.9	2552.7	2548.1	2561.2	2548.1
180°	2555.1	2555.1	2555.1	2555.1	2555.1

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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	10.22	11.04	11.19	12.02	13.31	6.19	7.01	7.16	7.99	9.28
	3H	11.89	12.63	12.88	13.62	14.93	7.38	8.11	8.36	9.10	10.41
	4H	12.50	13.20	13.50	14.19	15.51	7.83	8.53	8.83	9.52	10.84
	6H	12.92	13.56	13.93	14.56	15.89	8.15	8.79	9.16	9.79	11.12
	8H	13.05	13.66	14.06	14.67	16.00	8.24	8.85	9.26	9.87	11.19
	12H	13.11	13.69	14.13	14.70	16.05	8.29	8.87	9.30	9.87	11.23
4H	2H	10.23	10.93	11.24	11.92	13.24	6.78	7.48	7.79	8.47	9.79
	3H	12.06	12.64	13.07	13.66	15.00	8.13	8.71	9.15	9.74	11.07
	4H	12.76	13.28	13.77	14.30	15.65	8.68	9.21	9.70	10.23	11.58
	6H	13.27	13.73	14.30	14.76	16.12	9.10	9.56	10.13	10.60	11.95
	8H	13.45	13.87	14.48	14.90	16.27	9.23	9.66	10.27	10.69	12.06
	12H	13.54	13.92	14.59	14.97	16.34	9.30	9.68	10.35	10.73	12.10
8H	4H	12.72	13.15	13.75	14.18	15.54	8.96	9.39	10.00	10.42	11.79
	6H	13.29	13.64	14.34	14.71	16.08	9.48	9.83	10.54	10.91	12.27
	8H	13.51	13.82	14.57	14.87	16.26	9.68	9.98	10.74	11.04	12.43
	12H	13.65	13.92	14.71	14.97	16.40	9.80	10.07	10.86	11.12	12.55
12H	4H	12.67	13.06	13.72	14.10	15.48	8.97	9.35	10.02	10.40	11.77
	6H	13.27	13.57	14.33	14.63	16.02	9.53	9.84	10.60	10.90	12.28
	8H	13.49	13.76	14.55	14.81	16.24	9.75	10.02	10.81	11.07	12.50

END OF REPORT