

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: P927536

Luminaire Tested: DFN2DIP-HX4F0-040D080US840-FLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P927536
REPORT IS A COMBINATION OF REPORTS P900891 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-040D080US840-FLLONL
Description: 4 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

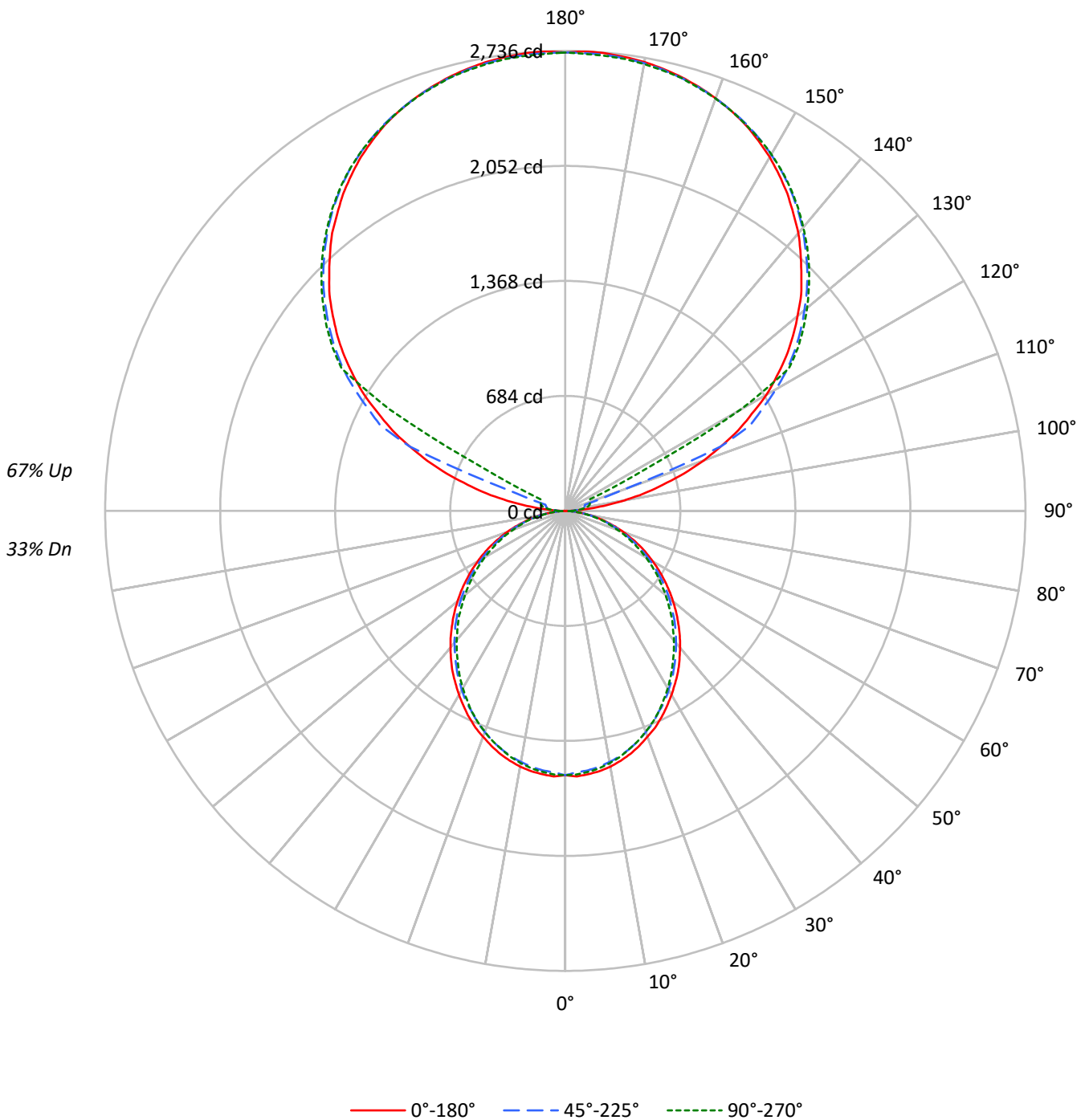
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 11996.4 lumens
Efficiency: N/A
Efficacy: 131.0 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: Semi-Indirect

Input Watts (W): 91.6
Input Voltage (V):
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: 0.9977
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				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	50	30	10	0	
RCR																						
0	103	103	103	103	93	93	93	93	74	74	74	57	57	57	41	41	41	33				33
1	94	90	86	83	85	81	78	75	65	63	61	50	48	47	36	35	34	28				28
2	86	78	72	67	77	71	66	62	57	53	50	44	41	39	32	30	29	24				24
3	78	69	62	56	70	62	56	51	50	46	42	39	36	33	28	26	25	20				20
4	71	61	53	47	64	55	49	43	44	40	36	34	31	28	25	23	21	17				17
5	65	54	46	40	59	49	42	37	40	35	31	31	27	25	23	20	18	15				15
6	60	48	41	35	54	44	37	32	36	31	27	28	24	21	20	18	16	13				13
7	56	44	36	30	50	40	33	28	32	27	23	25	22	19	19	16	14	12				12
8	51	39	32	27	46	36	29	25	29	24	21	23	19	17	17	15	13	10				10
9	48	36	29	24	43	33	26	22	27	22	19	21	18	15	16	13	12	9				9
10	45	33	26	21	40	30	24	20	25	20	17	19	16	14	15	12	11	9				9

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1169	1169	1169
5°	1171	1152	1160
10°	1161	1137	1145
15°	1144	1118	1120
20°	1121	1093	1095
25°	1098	1062	1066
30°	1070	1033	1029
35°	1043	999	990
40°	1009	964	953
45°	976	930	915
50°	939	894	871
55°	901	852	831
60°	858	802	784
65°	811	751	730
70°	751	688	671
75°	668	614	617
80°	569	518	513
85°	413	353	341

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°
 Vertical Angle: 90°
 Luminance: 1401 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	147.9	1.2
10°-20°	416.2	3.5
20°-30°	611.7	5.1
30°-40°	710.4	5.9
40°-50°	709.5	5.9
50°-60°	618.7	5.2
60°-70°	457.3	3.8
70°-80°	258.8	2.2
80°-90°	73.1	0.6
90°-100°	89.9	0.7
100°-110°	335.1	2.8
110°-120°	888.8	7.4
120°-130°	1474.2	12.3
130°-140°	1565.9	13.1
140°-150°	1455.3	12.1
150°-160°	1170.1	9.8
160°-170°	754.0	6.3
170°-180°	259.5	2.2
0°-30°	1175.8	9.8
0°-40°	1886.2	15.7
0°-60°	3214.4	26.8
0°-90°	4003.6	33.4
90°-120°	1313.9	11.0
90°-150°	5809.3	48.4
90°-180°	7993.0	66.6
0°-180°	11996.4	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1572	1572	1572	1572	1572	
5°	1572	1566	1549	1561	1558	149
15°	1496	1487	1467	1474	1466	421
25°	1354	1342	1316	1319	1316	623
35°	1168	1153	1129	1120	1112	730
45°	951	940	917	901	895	734
55°	720	710	692	674	667	643
65°	485	476	461	447	440	480
75°	254	251	243	234	237	271
85°	62	60	59	54	53	69
90°	2	24	39	49	53	11
95°	128	63	77	87	85	152
105°	600	659	120	142	150	641
115°	1134	1168	1217	304	162	1117
125°	1604	1630	1667	1681	1687	1430
135°	1985	2016	2034	2054	2050	1533
145°	2302	2300	2334	2348	2338	1440
155°	2535	2517	2541	2553	2537	1168
165°	2671	2659	2665	2679	2665	755
175°	2732	2718	2722	2736	2717	260
180°	2726	2726	2726	2726	2726	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1571.7	1571.7	1571.7	1571.7	1571.7
2.5°	1580.8	1573.3	1556.6	1571.7	1568.8
5°	1571.7	1565.7	1549.0	1561.0	1558.2
7.5°	1561.0	1552.1	1535.4	1547.6	1544.6
10°	1544.6	1534.0	1515.9	1527.9	1523.4
12.5°	1521.8	1512.8	1494.7	1502.3	1499.1
15°	1496.1	1487.1	1467.4	1473.5	1466.0
17.5°	1464.4	1455.4	1435.7	1443.2	1435.7
20°	1429.6	1420.6	1399.5	1403.9	1398.1
22.5°	1394.9	1381.3	1361.6	1361.6	1358.6
25°	1354.0	1342.0	1316.4	1319.3	1316.4
27.5°	1308.7	1298.1	1278.6	1274.1	1266.6
30°	1263.5	1251.3	1228.7	1224.2	1218.1
32.5°	1215.1	1206.1	1181.9	1172.8	1166.6
35°	1168.2	1153.2	1129.0	1119.9	1112.3
37.5°	1115.3	1101.7	1077.5	1067.0	1059.4
40°	1061.0	1048.8	1024.5	1011.1	1005.1
42.5°	1008.1	995.9	971.8	956.6	947.6
45°	950.6	940.1	917.3	900.8	894.7
47.5°	894.7	884.1	859.9	843.3	834.3
50°	835.7	828.1	807.0	785.8	778.3
52.5°	778.3	767.8	748.2	731.5	720.9
55°	719.5	710.3	692.2	674.0	666.6
57.5°	660.4	652.9	633.1	615.1	609.0
60°	601.4	595.5	574.4	557.7	553.2
62.5°	544.1	533.5	518.4	503.3	497.2
65°	485.2	476.0	461.0	447.3	439.9
67.5°	424.7	417.0	403.6	393.0	387.0
70°	368.8	362.7	349.1	338.5	332.5
72.5°	311.4	305.3	297.8	287.2	282.6
75°	253.9	250.9	243.3	234.3	237.3
77.5°	202.5	196.4	193.4	188.8	184.4
80°	151.2	149.6	146.5	142.1	139.0
82.5°	102.8	102.8	101.4	95.2	95.2
85°	61.9	60.5	59.0	54.3	52.9
87.5°	27.3	24.2	21.2	16.7	15.0
90°	1.9	23.6	39.4	49.4	53.2
92.5°	49.4	41.5	47.4	51.3	53.2
95°	128.1	63.0	76.8	86.9	84.8
97.5°	230.7	69.1	100.5	106.6	108.5
100°	349.3	79.0	112.5	128.1	132.1
102.5°	479.4	475.5	116.4	137.9	144.1
105°	599.7	659.0	120.4	142.0	150.0
107.5°	739.8	789.0	124.4	145.9	153.9
110°	874.1	915.3	345.4	148.0	155.8



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1000.3	1035.7	1002.2	151.8	157.9
115°	1134.3	1167.8	1217.2	303.8	161.9
117.5°	1250.7	1290.1	1323.8	1041.5	524.8
120°	1381.0	1410.5	1446.1	1469.8	1203.4
122.5°	1491.3	1523.0	1562.6	1574.3	1576.4
125°	1603.8	1629.5	1667.0	1680.8	1686.7
127.5°	1706.4	1734.0	1763.8	1783.4	1785.3
130°	1803.1	1834.7	1856.3	1878.1	1876.2
132.5°	1901.8	1927.5	1949.1	1966.9	1965.0
135°	1984.7	2016.3	2033.8	2053.8	2049.8
137.5°	2071.4	2095.0	2114.9	2134.6	2128.8
140°	2156.1	2172.1	2193.7	2211.5	2201.6
142.5°	2227.4	2241.2	2266.7	2282.5	2272.6
145°	2302.3	2300.2	2333.7	2347.6	2337.7
147.5°	2367.3	2361.4	2394.8	2404.7	2397.0
150°	2430.5	2416.7	2448.3	2460.0	2450.2
152.5°	2483.7	2468.0	2497.4	2509.5	2495.6
155°	2535.0	2517.4	2541.1	2552.8	2537.1
157.5°	2576.4	2560.8	2578.5	2592.4	2576.4
160°	2612.0	2600.1	2612.0	2623.8	2609.9
162.5°	2643.5	2631.7	2641.5	2655.4	2637.6
165°	2671.1	2659.4	2665.3	2679.0	2665.3
167.5°	2692.8	2680.9	2687.0	2700.8	2683.0
170°	2710.7	2698.7	2702.7	2716.6	2698.7
172.5°	2722.4	2710.7	2714.6	2728.5	2710.7
175°	2732.2	2718.4	2722.4	2736.2	2716.6
177.5°	2736.2	2722.4	2724.4	2738.3	2720.5
180°	2726.4	2726.4	2726.4	2726.4	2726.4



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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	6.04	6.77	7.13	7.86	9.35	5.61	6.34	6.70	7.43	8.92
	3H	7.69	8.35	8.79	9.44	10.95	7.22	7.87	8.32	8.97	10.48
	4H	8.27	8.89	9.38	9.99	11.50	7.80	8.42	8.91	9.52	11.03
	6H	8.67	9.24	9.78	10.34	11.86	8.19	8.76	9.31	9.86	11.39
	8H	8.77	9.31	9.89	10.43	11.95	8.29	8.84	9.41	9.95	11.47
	12H	8.81	9.33	9.94	10.44	11.98	8.33	8.85	9.46	9.96	11.50
4H	2H	6.49	7.11	7.60	8.20	9.72	6.14	6.76	7.26	7.86	9.37
	3H	8.34	8.86	9.46	9.98	11.51	7.95	8.47	9.07	9.59	11.12
	4H	9.05	9.53	10.18	10.64	12.19	8.65	9.12	9.77	10.23	11.78
	6H	9.56	9.97	10.69	11.10	12.64	9.15	9.56	10.28	10.69	12.23
	8H	9.71	10.09	10.84	11.22	12.77	9.30	9.68	10.43	10.80	12.36
	12H	9.77	10.12	10.92	11.26	12.82	9.35	9.70	10.50	10.84	12.40
8H	4H	9.24	9.62	10.37	10.75	12.30	8.88	9.26	10.01	10.39	11.94
	6H	9.87	10.18	11.02	11.35	12.90	9.50	9.82	10.66	10.99	12.54
	8H	10.09	10.36	11.24	11.51	13.08	9.72	9.99	10.87	11.14	12.71
	12H	10.21	10.45	11.37	11.60	13.21	9.83	10.07	10.99	11.21	12.82
12H	4H	9.22	9.56	10.37	10.70	12.26	8.87	9.21	10.01	10.35	11.91
	6H	9.89	10.17	11.05	11.32	12.89	9.54	9.82	10.70	10.97	12.54
	8H	10.13	10.37	11.29	11.52	13.13	9.77	10.02	10.94	11.16	12.77