

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: P928646

Luminaire Tested: DFN2DIP-HX4F0-080D060US930-RLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P928646
REPORT IS A COMBINATION OF REPORTS P900864 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-080D060US930-RLONL
Description: 4 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

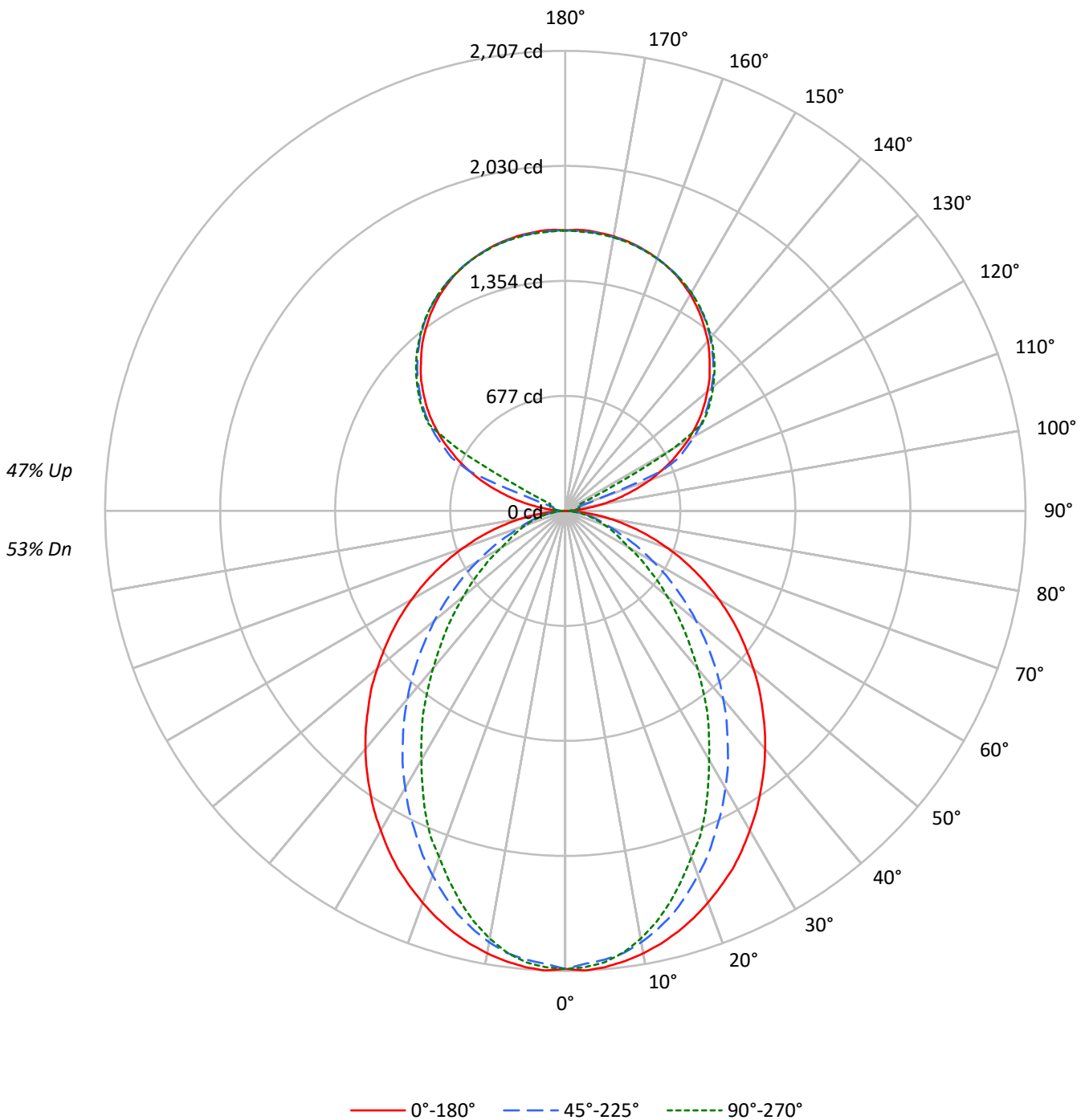
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 10383.1 lumens
Efficiency: N/A
Efficacy: 86.0 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): 120.7
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		0	
RW	70	50	30	10	70	50	30	10	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	72	72	72	59	59	59	53		
1	99	95	91	88	92	88	85	82	76	73	71	64	62	61	53	52	51	46		
2	91	83	78	73	84	78	73	68	67	63	60	57	54	52	47	45	44	39		
3	83	74	67	61	77	69	63	58	59	55	51	51	47	44	42	40	38	34		
4	76	66	58	52	70	61	55	49	53	48	44	45	42	38	38	35	33	30		
5	70	59	51	45	65	55	48	43	48	42	38	41	37	34	35	32	29	26		
6	65	53	45	39	60	50	43	37	43	38	34	37	33	30	32	28	26	23		
7	60	48	40	35	56	45	38	33	39	34	30	34	30	26	29	26	23	21		
8	56	44	36	31	52	41	34	29	36	31	27	31	27	24	27	24	21	19		
9	52	40	33	28	48	38	31	26	33	28	24	29	25	22	25	22	19	17		
10	49	37	30	25	45	35	28	24	31	25	22	27	23	20	23	20	17	16		

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2004	2004	2004
5°	2007	1972	1985
10°	1987	1934	1920
15°	1960	1870	1820
20°	1924	1782	1698
25°	1887	1683	1580
30°	1838	1582	1430
35°	1789	1474	1298
40°	1740	1361	1147
45°	1682	1236	1010
50°	1623	1110	876
55°	1561	975	748
60°	1489	835	616
65°	1407	691	554
70°	1307	558	502
75°	1181	492	457
80°	999	414	396
85°	699	277	299

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 1682 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	252.6	2.4
10°-20°	693.3	6.7
20°-30°	973.4	9.4
30°-40°	1061.0	10.2
40°-50°	975.2	9.4
50°-60°	765.9	7.4
60°-70°	498.5	4.8
70°-80°	256.6	2.5
80°-90°	68.4	0.7
90°-100°	54.4	0.5
100°-110°	202.9	2.0
110°-120°	538.0	5.2
120°-130°	892.3	8.6
130°-140°	947.9	9.1
140°-150°	880.9	8.5
150°-160°	708.2	6.8
160°-170°	456.4	4.4
170°-180°	157.1	1.5
0°-30°	1919.2	18.5
0°-40°	2980.3	28.7
0°-60°	4721.4	45.5
0°-90°	5544.9	53.4
90°-120°	795.3	7.7
90°-150°	3516.4	33.9
90°-180°	4838.0	46.6
0°-180°	10383.1	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2695	2695	2695	2695	2695	
5°	2695	2683	2651	2673	2666	256
15°	2563	2536	2453	2407	2383	722
25°	2326	2248	2088	1988	1951	1070
35°	2005	1880	1666	1512	1458	1255
45°	1639	1475	1219	1046	988	1266
55°	1246	1056	792	646	600	1113
65°	841	644	424	342	334	834
75°	449	278	195	178	176	475
85°	105	54	46	46	46	120
90°	1	14	24	30	32	10
95°	78	38	46	53	51	92
105°	363	399	73	86	91	388
115°	687	707	737	184	98	676
125°	971	986	1009	1017	1021	866
135°	1201	1220	1231	1243	1241	928
145°	1394	1392	1413	1421	1415	872
155°	1534	1524	1538	1545	1536	707
165°	1617	1610	1613	1622	1613	457
175°	1654	1646	1648	1656	1644	157
180°	1650	1650	1650	1650	1650	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2694.7	2694.7	2694.7	2694.7	2694.7
2.5°	2706.9	2694.7	2667.8	2692.4	2687.5
5°	2694.7	2682.6	2650.7	2672.7	2665.5
7.5°	2672.7	2658.2	2624.1	2633.7	2621.4
10°	2643.5	2626.4	2577.8	2570.3	2555.8
12.5°	2607.0	2585.0	2519.0	2504.5	2477.6
15°	2563.0	2536.1	2453.3	2407.0	2382.7
17.5°	2511.7	2472.7	2370.3	2316.7	2277.6
20°	2453.3	2404.4	2282.6	2221.8	2167.9
22.5°	2389.9	2333.8	2192.3	2109.5	2073.0
25°	2326.5	2248.4	2087.5	1987.6	1950.9
27.5°	2250.9	2167.9	1989.9	1875.3	1819.2
30°	2170.5	2077.6	1882.6	1758.4	1692.3
32.5°	2092.3	1980.1	1780.4	1633.9	1572.9
35°	2004.7	1880.2	1665.7	1512.1	1458.2
37.5°	1919.2	1785.0	1558.4	1389.9	1329.1
40°	1829.0	1682.8	1446.1	1272.9	1209.5
42.5°	1736.4	1580.4	1334.0	1153.5	1092.6
45°	1638.8	1475.3	1219.4	1046.1	987.6
47.5°	1546.2	1373.1	1109.7	936.4	882.8
50°	1443.7	1270.7	1002.4	833.9	782.9
52.5°	1343.6	1160.6	899.8	739.0	692.7
55°	1246.1	1055.9	792.5	646.3	600.0
57.5°	1146.2	951.1	697.6	561.0	521.8
60°	1043.7	848.7	597.4	473.2	434.2
62.5°	943.9	748.7	512.1	395.1	375.7
65°	841.4	643.7	424.3	341.6	334.0
67.5°	743.9	546.2	341.6	299.8	292.7
70°	641.4	451.3	282.8	258.4	248.7
72.5°	543.8	363.2	236.5	217.1	212.1
75°	448.7	277.9	195.1	178.0	175.7
77.5°	353.7	197.4	153.7	143.8	139.0
80°	265.7	141.6	117.0	107.3	107.3
82.5°	185.2	95.2	80.4	75.6	75.6
85°	104.8	53.5	46.3	46.3	46.3
87.5°	39.0	19.4	19.4	17.1	17.1
90°	1.1	14.3	23.8	29.9	32.2
92.5°	29.9	25.1	28.6	31.1	32.2
95°	77.6	38.1	46.5	52.6	51.3
97.5°	139.7	41.8	60.8	64.5	65.7
100°	211.4	47.8	68.1	77.6	80.0
102.5°	290.1	287.9	70.5	83.5	87.2
105°	363.0	398.9	72.9	85.9	90.8
107.5°	447.8	477.6	75.3	88.3	93.2
110°	529.1	554.0	209.0	89.6	94.3



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	605.5	626.9	606.6	91.9	95.6
115°	686.6	706.9	736.8	183.9	98.0
117.5°	757.1	780.9	801.3	630.5	317.6
120°	835.9	853.8	875.4	889.7	728.4
122.5°	902.7	921.8	945.8	952.9	954.2
125°	970.8	986.4	1009.1	1017.4	1021.0
127.5°	1032.9	1049.6	1067.6	1079.5	1080.7
130°	1091.4	1110.6	1123.6	1136.8	1135.7
132.5°	1151.2	1166.8	1179.8	1190.6	1189.4
135°	1201.4	1220.5	1231.1	1243.2	1240.8
137.5°	1253.8	1268.1	1280.2	1292.1	1288.6
140°	1305.1	1314.8	1327.9	1338.6	1332.7
142.5°	1348.3	1356.6	1372.1	1381.6	1375.6
145°	1393.6	1392.3	1412.6	1421.0	1415.1
147.5°	1432.9	1429.3	1449.6	1455.6	1450.9
150°	1471.2	1462.8	1482.0	1489.1	1483.1
152.5°	1503.4	1493.9	1511.7	1519.0	1510.6
155°	1534.5	1523.8	1538.1	1545.2	1535.7
157.5°	1559.6	1550.0	1560.8	1569.2	1559.6
160°	1581.1	1573.8	1581.1	1588.2	1579.9
162.5°	1600.1	1593.0	1598.9	1607.3	1596.6
165°	1616.9	1609.8	1613.3	1621.7	1613.3
167.5°	1630.0	1622.8	1626.5	1634.9	1624.1
170°	1640.8	1633.6	1636.0	1644.3	1633.6
172.5°	1647.9	1640.8	1643.2	1651.6	1640.8
175°	1653.9	1645.5	1647.9	1656.2	1644.3
177.5°	1656.2	1647.9	1649.2	1657.5	1646.8
180°	1650.3	1650.3	1650.3	1650.3	1650.3



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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	9.88	10.73	10.81	11.68	12.91	5.85	6.71	6.78	7.65	8.88
	3H	11.56	12.32	12.50	13.28	14.53	7.04	7.81	7.99	8.77	10.01
	4H	12.17	12.89	13.13	13.85	15.11	7.49	8.22	8.45	9.18	10.44
	6H	12.59	13.26	13.56	14.22	15.49	7.82	8.49	8.79	9.45	10.72
	8H	12.72	13.35	13.70	14.34	15.60	7.91	8.55	8.89	9.53	10.80
	12H	12.78	13.39	13.76	14.36	15.65	7.96	8.56	8.94	9.54	10.83
4H	2H	9.90	10.62	10.86	11.58	12.84	6.45	7.17	7.41	8.13	9.39
	3H	11.73	12.33	12.71	13.32	14.59	7.80	8.41	8.78	9.40	10.67
	4H	12.42	12.97	13.41	13.96	15.25	8.35	8.90	9.34	9.89	11.18
	6H	12.94	13.42	13.94	14.42	15.72	8.78	9.25	9.77	10.26	11.55
	8H	13.12	13.56	14.12	14.56	15.87	8.91	9.35	9.90	10.35	11.66
	12H	13.22	13.61	14.23	14.63	15.94	8.97	9.37	9.99	10.39	11.70
8H	4H	12.39	12.84	13.39	13.84	15.14	8.64	9.08	9.63	10.08	11.39
	6H	12.96	13.33	13.99	14.37	15.68	9.16	9.52	10.18	10.56	11.87
	8H	13.18	13.50	14.21	14.53	15.86	9.35	9.67	10.38	10.70	12.03
	12H	13.32	13.60	14.35	14.63	16.00	9.47	9.75	10.51	10.78	12.15
12H	4H	12.35	12.75	13.36	13.76	15.08	8.64	9.04	9.66	10.06	11.37
	6H	12.94	13.26	13.97	14.29	15.61	9.21	9.53	10.24	10.56	11.88
	8H	13.16	13.44	14.19	14.47	15.84	9.42	9.70	10.45	10.73	12.10