

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: P929150

Luminaire Tested: DFN2DIP-HX4F0-040D060US940-RLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P929150
REPORT IS A COMBINATION OF REPORTS P900856 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-040D060US940-RLONL
Description: 4 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

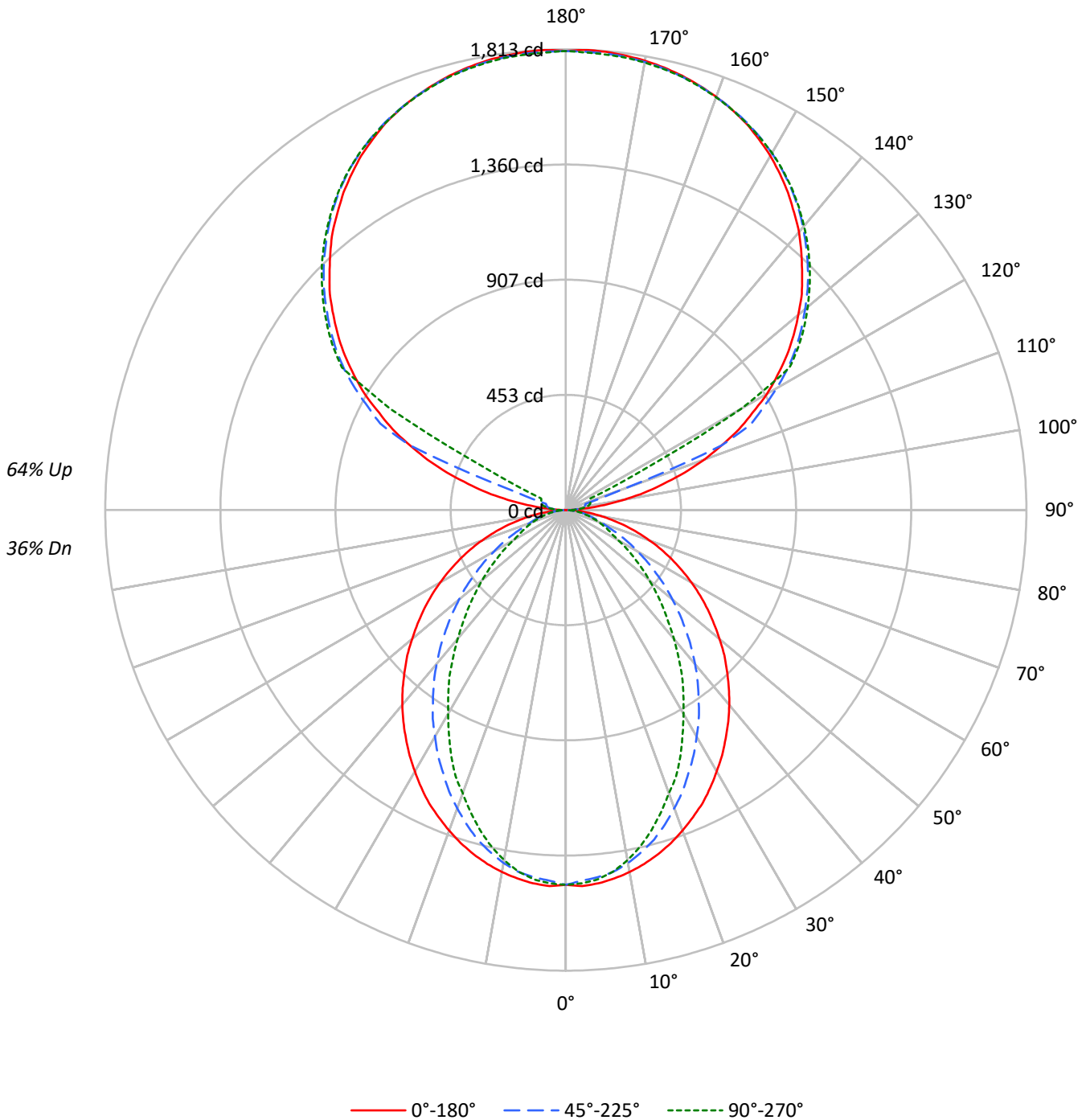
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 8331.3 lumens
Efficiency: N/A
Efficacy: 107.8 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: Semi-Indirect

Input Watts (W): 77.3
Input Voltage (V):
Input Current (Ain): 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				
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	104	104	104	104	94	94	94	94	76	76	76	59	59	59	44	44	44	36			36
1	95	91	87	84	86	83	80	77	67	65	63	52	51	50	39	38	38	31			31
2	87	80	74	69	78	73	68	63	59	56	53	46	44	42	35	33	32	27			27
3	79	70	63	58	72	64	58	53	52	48	45	41	38	36	31	29	28	23			23
4	73	63	55	49	66	57	51	46	47	42	38	37	34	31	28	26	24	20			20
5	67	56	48	42	60	51	44	39	42	37	33	33	30	27	25	23	21	18			18
6	62	50	42	37	56	46	39	34	38	33	29	30	27	24	23	21	19	16			16
7	57	45	38	32	52	41	35	30	34	29	26	28	24	21	21	19	17	14			14
8	53	41	34	29	48	38	31	27	31	26	23	25	22	19	20	17	15	13			13
9	49	37	30	25	45	34	28	24	29	24	20	23	20	17	18	16	14	12			12
10	46	34	27	23	42	32	25	21	26	22	18	22	18	15	17	14	13	11			11

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1097	1097	1097
5°	1098	1079	1086
10°	1088	1058	1051
15°	1073	1023	996
20°	1053	975	929
25°	1033	921	864
30°	1006	866	782
35°	979	806	710
40°	952	745	628
45°	921	676	553
50°	888	608	479
55°	854	534	409
60°	815	457	337
65°	770	378	303
70°	715	305	274
75°	646	269	250
80°	547	226	217
85°	383	151	163

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°
 Vertical Angle: 90°
 Luminance: 927 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	138.2	1.7
10°-20°	379.4	4.6
20°-30°	532.7	6.4
30°-40°	580.6	7.0
40°-50°	533.7	6.4
50°-60°	419.1	5.0
60°-70°	272.8	3.3
70°-80°	140.4	1.7
80°-90°	39.0	0.5
90°-100°	59.5	0.7
100°-110°	222.0	2.7
110°-120°	588.9	7.1
120°-130°	976.7	11.7
130°-140°	1037.4	12.5
140°-150°	964.2	11.6
150°-160°	775.2	9.3
160°-170°	499.5	6.0
170°-180°	171.9	2.1
0°-30°	1050.3	12.6
0°-40°	1630.9	19.6
0°-60°	2583.7	31.0
0°-90°	3036.0	36.4
90°-120°	870.4	10.4
90°-150°	3848.7	46.2
90°-180°	5295.0	63.6
0°-180°	8331.3	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1475	1475	1475	1475	1475	
5°	1475	1468	1451	1463	1459	140
15°	1403	1388	1342	1317	1304	395
25°	1273	1230	1142	1088	1068	586
35°	1097	1029	912	827	798	687
45°	897	807	667	572	540	693
55°	682	578	434	354	328	609
65°	460	352	232	187	183	457
75°	246	152	107	97	96	260
85°	57	29	25	25	25	66
90°	1	16	26	33	35	8
95°	85	42	51	58	56	101
105°	397	436	80	94	99	425
115°	752	774	806	201	107	740
125°	1063	1080	1104	1114	1117	948
135°	1315	1336	1348	1361	1358	1016
145°	1525	1524	1546	1555	1549	954
155°	1680	1668	1684	1691	1681	774
165°	1770	1762	1766	1775	1766	500
175°	1810	1801	1804	1813	1800	172
180°	1806	1806	1806	1806	1806	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1474.7	1474.7	1474.7	1474.7	1474.7
2.5°	1481.3	1474.7	1459.9	1473.4	1470.6
5°	1474.7	1468.0	1450.6	1462.6	1458.7
7.5°	1462.6	1454.7	1436.0	1441.2	1434.6
10°	1446.6	1437.3	1410.6	1406.5	1398.7
12.5°	1426.7	1414.6	1378.5	1370.6	1355.8
15°	1402.6	1387.9	1342.5	1317.2	1303.9
17.5°	1374.6	1353.2	1297.1	1267.8	1246.4
20°	1342.5	1315.8	1249.1	1215.8	1186.4
22.5°	1307.9	1277.2	1199.7	1154.3	1134.4
25°	1273.2	1230.4	1142.3	1087.7	1067.5
27.5°	1231.9	1186.4	1089.0	1026.2	995.5
30°	1187.8	1136.9	1030.2	962.2	926.2
32.5°	1145.1	1083.6	974.2	894.1	860.7
35°	1097.1	1028.9	911.5	827.4	798.0
37.5°	1050.3	976.8	852.8	760.6	727.3
40°	1000.9	920.9	791.4	696.7	662.0
42.5°	950.2	864.8	730.0	631.2	597.9
45°	896.8	807.3	667.3	572.5	540.5
47.5°	846.2	751.4	607.3	512.5	483.1
50°	790.0	695.3	548.5	456.3	428.4
52.5°	735.3	635.2	492.5	404.3	379.0
55°	681.9	577.8	433.7	353.7	328.3
57.5°	627.3	520.5	381.7	306.9	285.6
60°	571.1	464.4	326.9	258.9	237.6
62.5°	516.6	409.8	280.2	216.2	205.6
65°	460.5	352.3	232.2	186.9	182.8
67.5°	407.1	298.9	186.9	164.1	160.1
70°	351.0	246.9	154.8	141.5	136.0
72.5°	297.7	198.8	129.4	118.8	116.1
75°	245.5	152.1	106.8	97.4	96.2
77.5°	193.6	108.0	84.1	78.8	76.0
80°	145.4	77.4	64.0	58.8	58.8
82.5°	101.4	52.1	44.1	41.3	41.3
85°	57.4	29.3	25.3	25.3	25.3
87.5°	21.4	10.6	10.6	9.4	9.4
90°	1.2	15.7	26.0	32.7	35.2
92.5°	32.7	27.5	31.3	34.0	35.2
95°	84.9	41.7	50.9	57.6	56.2
97.5°	152.9	45.8	66.5	70.6	71.9
100°	231.4	52.3	74.5	84.9	87.5
102.5°	317.6	315.1	77.2	91.4	95.4
105°	397.3	436.5	79.7	94.0	99.4
107.5°	490.2	522.7	82.4	96.7	102.0
110°	579.1	606.4	228.8	98.1	103.2



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	662.7	686.1	663.9	100.5	104.6
115°	751.5	773.7	806.5	201.3	107.2
117.5°	828.6	854.7	877.0	690.1	347.6
120°	914.9	934.5	958.1	973.7	797.3
122.5°	988.0	1008.9	1035.2	1042.9	1044.4
125°	1062.6	1079.6	1104.4	1113.6	1117.4
127.5°	1130.5	1148.8	1168.5	1181.5	1182.8
130°	1194.6	1215.5	1229.8	1244.3	1243.0
132.5°	1260.0	1277.0	1291.3	1303.0	1301.8
135°	1314.9	1335.9	1347.5	1360.7	1358.0
137.5°	1372.3	1388.0	1401.2	1414.2	1410.3
140°	1428.4	1439.1	1453.3	1465.1	1458.6
142.5°	1475.6	1484.8	1501.8	1512.1	1505.6
145°	1525.3	1523.9	1546.1	1555.3	1548.8
147.5°	1568.3	1564.4	1586.6	1593.1	1588.0
150°	1610.2	1601.1	1622.0	1629.8	1623.3
152.5°	1645.5	1635.0	1654.6	1662.5	1653.3
155°	1679.5	1667.8	1683.5	1691.2	1680.8
157.5°	1706.9	1696.5	1708.3	1717.5	1706.9
160°	1730.5	1722.5	1730.5	1738.2	1729.1
162.5°	1751.3	1743.5	1750.0	1759.2	1747.4
165°	1769.6	1761.9	1765.7	1774.9	1765.7
167.5°	1784.0	1776.2	1780.2	1789.4	1777.5
170°	1795.9	1787.9	1790.6	1799.7	1787.9
172.5°	1803.6	1795.9	1798.5	1807.6	1795.9
175°	1810.1	1800.9	1803.6	1812.7	1799.7
177.5°	1812.7	1803.6	1805.0	1814.1	1802.4
180°	1806.2	1806.2	1806.2	1806.2	1806.2



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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	6.05	6.78	7.12	7.85	9.31	2.03	2.76	3.10	3.82	5.28
	3H	7.72	8.38	8.80	9.45	10.93	3.21	3.86	4.29	4.94	6.41
	4H	8.33	8.95	9.42	10.03	11.51	3.66	4.27	4.75	5.35	6.83
	6H	8.75	9.32	9.85	10.40	11.89	3.97	4.54	5.07	5.62	7.12
	8H	8.87	9.41	9.97	10.51	11.99	4.06	4.60	5.17	5.70	7.19
	12H	8.93	9.44	10.04	10.53	12.04	4.10	4.62	5.21	5.71	7.22
4H	2H	6.06	6.68	7.16	7.76	9.24	2.61	3.23	3.71	4.31	5.79
	3H	7.88	8.40	8.99	9.50	10.99	3.95	4.47	5.06	5.57	7.06
	4H	8.57	9.04	9.68	10.14	11.65	4.50	4.97	5.61	6.07	7.58
	6H	9.08	9.49	10.20	10.60	12.11	4.91	5.32	6.03	6.44	7.94
	8H	9.25	9.63	10.37	10.74	12.26	5.04	5.42	6.16	6.53	8.05
	12H	9.35	9.69	10.48	10.81	12.34	5.10	5.45	6.24	6.57	8.09
8H	4H	8.53	8.91	9.65	10.02	11.54	4.77	5.15	5.89	6.26	7.78
	6H	9.09	9.41	10.23	10.56	12.08	5.29	5.60	6.43	6.75	8.27
	8H	9.31	9.58	10.45	10.72	12.26	5.48	5.75	6.62	6.89	8.43
	12H	9.45	9.69	10.59	10.82	12.39	5.60	5.84	6.74	6.97	8.54
12H	4H	8.48	8.82	9.61	9.94	11.47	4.77	5.11	5.90	6.24	7.76
	6H	9.07	9.34	10.21	10.48	12.01	5.34	5.61	6.48	6.74	8.28
	8H	9.29	9.53	10.43	10.66	12.23	5.55	5.79	6.69	6.92	8.49