

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: P929184

Luminaire Tested: DFN2DIP-HX4F0-050D060US940-FLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P929184
REPORT IS A COMBINATION OF REPORTS P900857 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-050D060US940-FLLONL
Description: 4 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

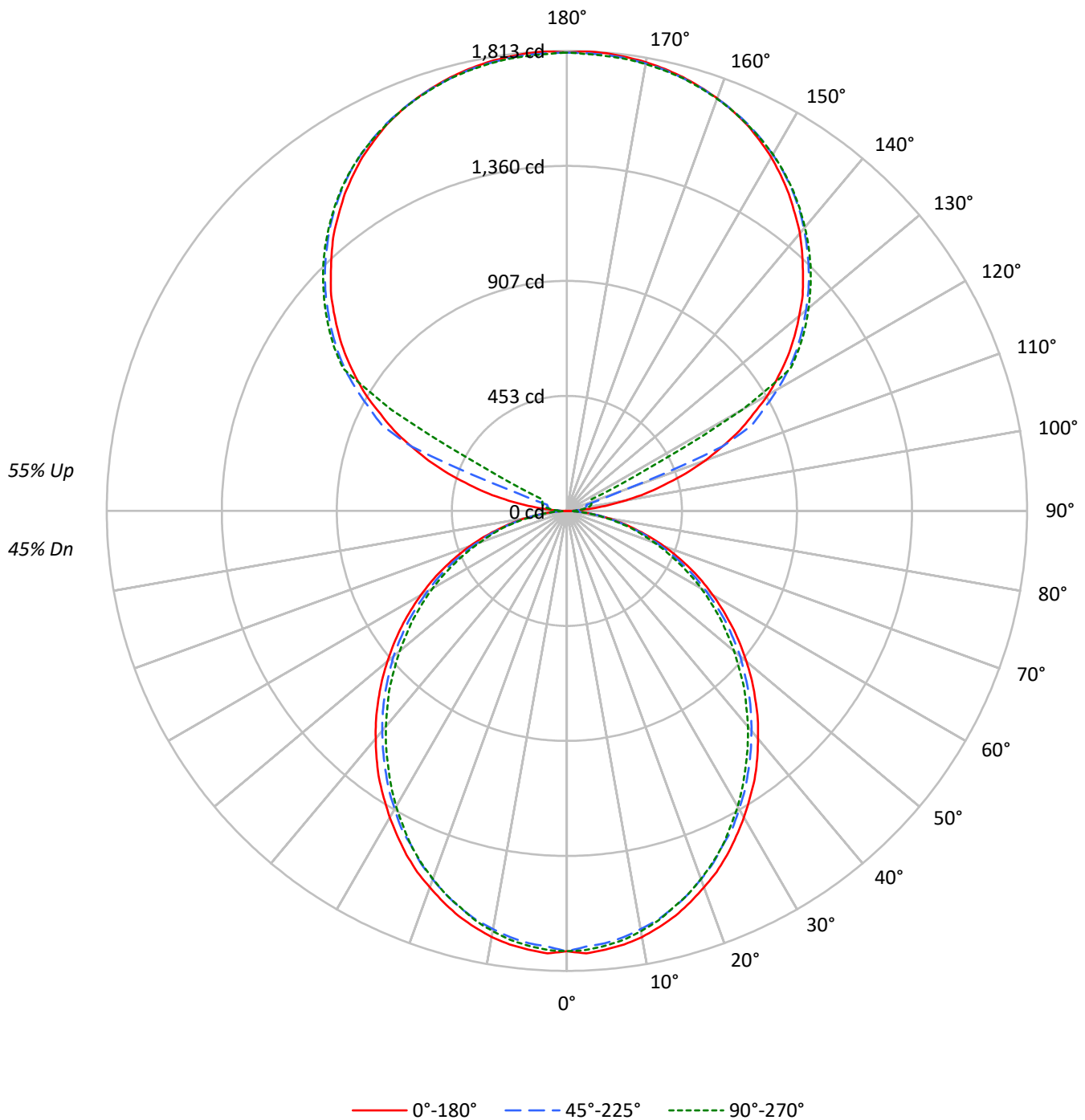
Lumens per Lamp: N/A
Luminaire Lumens: 9713.9 lumens
Efficiency: N/A
Efficacy: 110.8 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 87.7
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9957
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	106	106	106	106	97	97	97	97	81	81	81	66	66	66	52	52	52
1	97	92	89	85	89	85	82	79	71	68	66	58	56	55	46	45	44
2	88	81	75	70	81	74	69	65	62	58	55	51	48	46	40	39	37
3	80	71	64	58	73	65	59	54	55	50	46	45	42	39	36	33	31
4	74	63	55	49	67	58	51	46	49	43	39	40	36	33	32	29	27
5	67	56	48	42	62	52	45	39	43	38	34	36	32	29	29	26	24
6	62	50	42	36	57	46	39	34	39	34	30	32	28	25	26	23	21
7	57	45	37	32	53	42	35	30	35	30	26	30	25	22	24	21	18
8	53	41	33	28	49	38	31	26	32	27	23	27	23	20	22	19	17
9	50	37	30	25	45	35	28	24	30	24	21	25	21	18	20	17	15
10	46	34	27	22	42	32	25	21	27	22	19	23	19	16	19	16	14

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1290	1290	1290
5°	1293	1273	1281
10°	1282	1256	1264
15°	1263	1235	1237
20°	1238	1206	1209
25°	1213	1172	1177
30°	1181	1140	1136
35°	1151	1103	1093
40°	1114	1065	1052
45°	1077	1027	1010
50°	1037	987	962
55°	995	941	917
60°	947	886	866
65°	896	829	806
70°	830	760	741
75°	738	677	681
80°	628	572	567
85°	455	389	377

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 1077 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	163.3	1.7
10°-20°	459.6	4.7
20°-30°	675.4	7.0
30°-40°	784.4	8.1
40°-50°	783.4	8.1
50°-60°	683.1	7.0
60°-70°	505.0	5.2
70°-80°	285.7	2.9
80°-90°	78.6	0.8
90°-100°	59.5	0.6
100°-110°	222.0	2.3
110°-120°	588.9	6.1
120°-130°	976.7	10.1
130°-140°	1037.4	10.7
140°-150°	964.2	9.9
150°-160°	775.2	8.0
160°-170°	499.5	5.1
170°-180°	171.9	1.8
0°-30°	1298.3	13.4
0°-40°	2082.7	21.4
0°-60°	3549.3	36.5
0°-90°	4418.6	45.5
90°-120°	870.4	9.0
90°-150°	3848.7	39.6
90°-180°	5295.0	54.5
0°-180°	9713.9	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1735	1735	1735	1735	1735	
5°	1735	1729	1710	1724	1721	165
15°	1652	1642	1620	1627	1619	465
25°	1495	1482	1454	1457	1454	688
35°	1290	1273	1247	1236	1228	806
45°	1050	1038	1013	995	988	810
55°	794	784	764	744	736	710
65°	536	526	509	494	486	530
75°	280	277	269	259	262	299
85°	68	67	65	60	58	76
90°	1	16	26	33	35	9
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°	1735.4	1735.4	1735.4	1735.4	1735.4
2.5°	1745.5	1737.2	1718.8	1735.4	1732.3
5°	1735.4	1728.9	1710.4	1723.7	1720.6
7.5°	1723.7	1713.8	1695.4	1708.9	1705.5
10°	1705.5	1693.8	1673.8	1687.0	1682.1
12.5°	1680.3	1670.4	1650.5	1658.8	1655.4
15°	1652.0	1642.1	1620.3	1627.1	1618.7
17.5°	1616.9	1607.0	1585.3	1593.6	1585.3
20°	1578.6	1568.7	1545.3	1550.2	1543.7
22.5°	1540.3	1525.2	1503.5	1503.5	1500.1
25°	1495.2	1481.9	1453.5	1456.7	1453.5
27.5°	1445.0	1433.4	1411.8	1406.8	1398.5
30°	1395.1	1381.7	1356.7	1351.7	1345.0
32.5°	1341.7	1331.8	1305.0	1294.9	1288.2
35°	1289.9	1273.3	1246.6	1236.5	1228.2
37.5°	1231.5	1216.5	1189.7	1178.1	1169.8
40°	1171.6	1158.1	1131.3	1116.4	1109.7
42.5°	1113.1	1099.7	1073.1	1056.2	1046.3
45°	1049.7	1038.0	1012.9	994.7	987.9
47.5°	987.9	976.2	949.5	931.1	921.2
50°	922.8	914.5	891.1	867.7	859.4
52.5°	859.4	847.7	826.1	807.7	796.0
55°	794.4	784.3	764.3	744.3	736.0
57.5°	729.2	720.9	699.1	679.2	672.4
60°	664.1	657.6	634.2	615.7	610.8
62.5°	600.8	589.1	572.4	555.7	549.0
65°	535.7	525.7	509.0	494.0	485.6
67.5°	469.0	460.5	445.6	434.0	427.2
70°	407.2	400.5	385.4	373.7	367.2
72.5°	343.9	337.1	328.8	317.1	312.1
75°	280.3	277.1	268.6	258.7	262.1
77.5°	223.6	216.8	213.5	208.5	203.6
80°	167.0	165.2	161.8	156.9	153.5
82.5°	113.5	113.5	111.9	105.2	105.2
85°	68.3	66.7	65.1	60.0	58.4
87.5°	30.1	26.8	23.4	18.4	16.7
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	7.73	8.55	8.72	9.55	10.89	7.29	8.12	8.29	9.12	10.46
	3H	9.38	10.12	10.39	11.14	12.49	8.91	9.65	9.92	10.66	12.02
	4H	9.97	10.67	10.99	11.69	13.05	9.50	10.20	10.52	11.21	12.58
	6H	10.37	11.01	11.40	12.04	13.41	9.89	10.54	10.92	11.56	12.94
	8H	10.47	11.09	11.51	12.13	13.50	10.00	10.61	11.03	11.65	13.02
	12H	10.52	11.10	11.56	12.14	13.53	10.04	10.62	11.08	11.66	13.05
4H	2H	8.18	8.88	9.21	9.90	11.26	7.84	8.54	8.86	9.56	10.92
	3H	10.05	10.63	11.08	11.68	13.05	9.65	10.24	10.69	11.28	12.66
	4H	10.76	11.29	11.80	12.33	13.73	10.36	10.89	11.40	11.93	13.33
	6H	11.27	11.73	12.33	12.80	14.19	10.87	11.32	11.92	12.39	13.78
	8H	11.42	11.85	12.48	12.91	14.32	11.01	11.44	12.06	12.50	13.90
	12H	11.50	11.88	12.57	12.95	14.37	11.07	11.46	12.14	12.53	13.95
8H	4H	10.96	11.38	12.01	12.44	13.85	10.59	11.02	11.65	12.08	13.49
	6H	11.59	11.94	12.66	13.04	14.44	11.22	11.58	12.30	12.67	14.08
	8H	11.81	12.12	12.89	13.20	14.63	11.44	11.75	12.52	12.83	14.26
	12H	11.94	12.21	13.02	13.29	14.75	11.55	11.83	12.64	12.90	14.37
12H	4H	10.94	11.33	12.01	12.40	13.81	10.59	10.97	11.66	12.04	13.46
	6H	11.62	11.93	12.70	13.01	14.43	11.26	11.58	12.35	12.66	14.08
	8H	11.86	12.13	12.94	13.21	14.67	11.50	11.77	12.59	12.85	14.32