

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: P929186

Luminaire Tested: DFN2DIP-HX4F0-050D060US940-RLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P929186
REPORT IS A COMBINATION OF REPORTS P900858 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-050D060US940-RLLONL
Description: 4 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

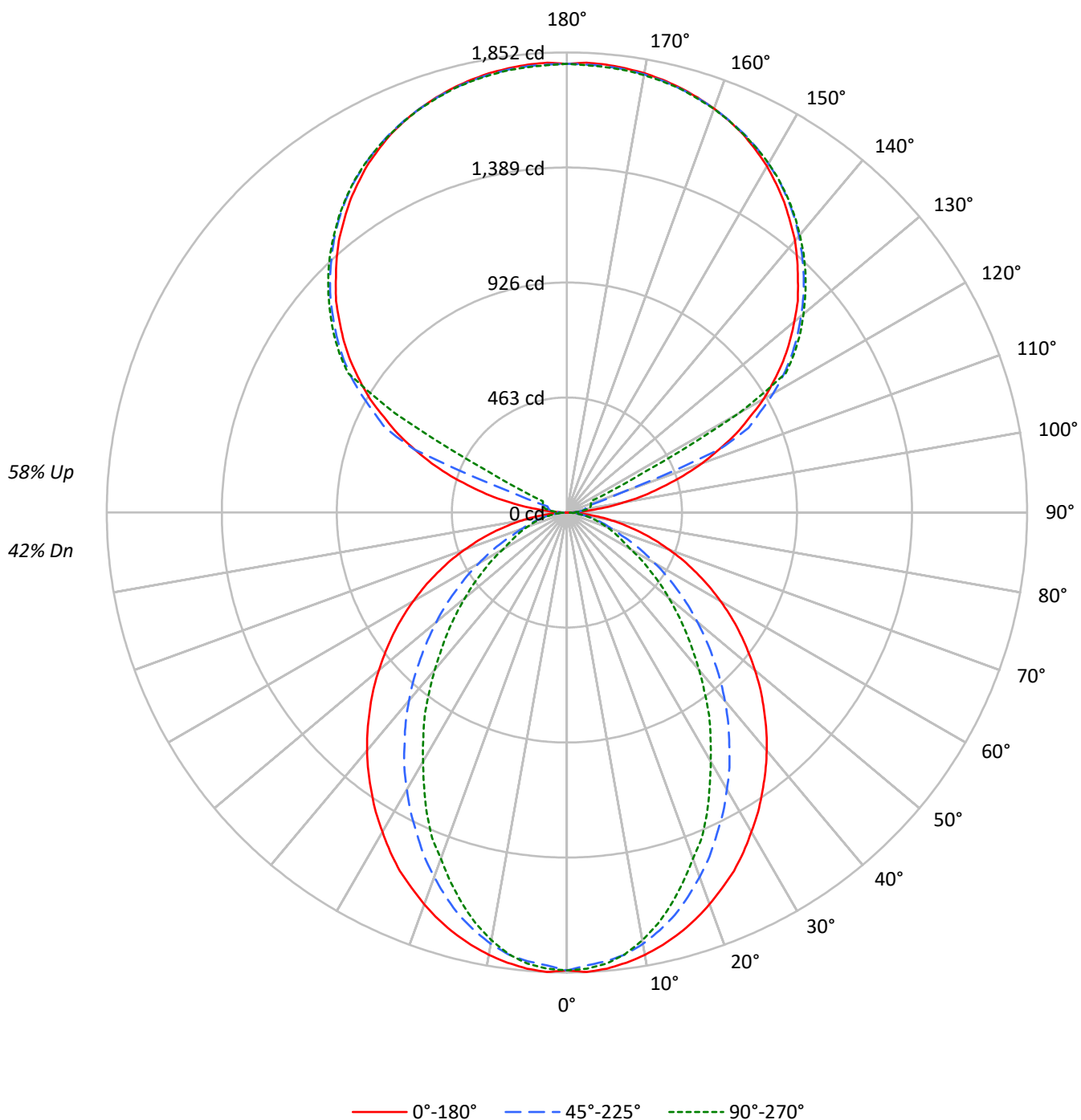
Lumens per Lamp: N/A
Luminaire Lumens: 9089.5 lumens
Efficiency: N/A
Efficacy: 103.6 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 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	105	105	105	105	96	96	96	96	79	79	79	63	63	63	49	49	49
1	96	92	89	85	88	84	81	78	70	67	65	56	55	53	43	43	42
2	88	81	75	70	80	74	69	65	61	58	55	50	47	45	39	37	36
3	81	72	65	59	73	66	60	55	55	50	46	44	41	39	35	33	31
4	74	64	56	50	67	58	52	47	49	44	40	40	36	33	31	29	27
5	68	57	49	43	62	52	45	40	44	39	35	36	32	29	28	26	24
6	63	51	43	38	57	47	40	35	39	34	30	32	29	26	26	23	21
7	58	46	38	33	53	43	36	31	36	31	27	30	26	23	24	21	19
8	54	42	34	29	49	39	32	27	33	28	24	27	23	20	22	19	17
9	50	38	31	26	46	35	29	25	30	25	22	25	21	18	20	17	15
10	47	35	28	23	43	33	26	22	28	23	19	23	19	17	19	16	14

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1371	1371	1371
5°	1373	1349	1358
10°	1359	1323	1313
15°	1341	1279	1245
20°	1316	1219	1162
25°	1291	1151	1081
30°	1257	1082	978
35°	1224	1008	888
40°	1190	931	785
45°	1151	846	691
50°	1110	759	599
55°	1068	667	511
60°	1019	571	421
65°	962	473	379
70°	894	382	343
75°	808	336	312
80°	684	283	271
85°	478	190	204

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 1151 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	172.8	1.9
10°-20°	474.3	5.2
20°-30°	665.8	7.3
30°-40°	725.8	8.0
40°-50°	667.1	7.3
50°-60°	523.9	5.8
60°-70°	341.0	3.8
70°-80°	175.5	1.9
80°-90°	48.0	0.5
90°-100°	59.5	0.7
100°-110°	222.0	2.4
110°-120°	588.9	6.5
120°-130°	976.7	10.7
130°-140°	1037.4	11.4
140°-150°	964.2	10.6
150°-160°	775.2	8.5
160°-170°	499.5	5.5
170°-180°	171.9	1.9
0°-30°	1312.9	14.4
0°-40°	2038.7	22.4
0°-60°	3229.7	35.5
0°-90°	3794.2	41.7
90°-120°	870.4	9.6
90°-150°	3848.7	42.3
90°-180°	5295.0	58.3
0°-180°	9089.5	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1843	1843	1843	1843	1843	
5°	1843	1835	1813	1828	1823	175
15°	1753	1735	1678	1646	1630	494
25°	1591	1538	1428	1360	1334	732
35°	1371	1286	1139	1034	998	858
45°	1121	1009	834	716	676	866
55°	852	722	542	442	410	762
65°	576	440	290	234	228	571
75°	307	190	133	122	120	325
85°	72	37	32	32	32	82
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°	1843.3	1843.3	1843.3	1843.3	1843.3
2.5°	1851.6	1843.3	1824.9	1841.7	1838.3
5°	1843.3	1835.0	1813.3	1828.2	1823.3
7.5°	1828.2	1818.3	1795.0	1801.6	1793.2
10°	1808.3	1796.6	1763.3	1758.2	1748.2
12.5°	1783.3	1768.3	1723.2	1713.3	1694.8
15°	1753.2	1734.9	1678.2	1646.5	1629.9
17.5°	1718.2	1691.5	1621.4	1584.7	1558.0
20°	1678.2	1644.8	1561.4	1519.8	1483.0
22.5°	1634.9	1596.4	1499.6	1443.0	1418.0
25°	1591.4	1538.0	1427.9	1359.6	1334.4
27.5°	1539.8	1483.0	1361.2	1282.8	1244.4
30°	1484.7	1421.2	1287.8	1202.8	1157.6
32.5°	1431.3	1354.5	1217.8	1117.7	1075.9
35°	1371.3	1286.2	1139.4	1034.3	997.5
37.5°	1312.8	1221.1	1066.0	950.8	909.2
40°	1251.1	1151.1	989.1	870.8	827.4
42.5°	1187.8	1081.0	912.5	789.0	747.4
45°	1121.1	1009.2	834.1	715.6	675.5
47.5°	1057.6	939.3	759.1	640.5	603.9
50°	987.6	869.2	685.7	570.4	535.6
52.5°	919.1	794.0	615.6	505.5	473.8
55°	852.4	722.3	542.1	442.1	410.4
57.5°	784.1	650.6	477.1	383.7	357.0
60°	714.0	580.5	408.6	323.7	296.9
62.5°	645.6	512.2	350.3	270.3	257.0
65°	575.5	440.4	290.3	233.6	228.5
67.5°	508.8	373.7	233.6	205.2	200.2
70°	438.8	308.6	193.5	176.8	170.1
72.5°	372.1	248.5	161.8	148.5	145.1
75°	306.9	190.1	133.4	121.8	120.2
77.5°	241.9	135.0	105.2	98.4	95.0
80°	181.8	96.8	80.0	73.4	73.4
82.5°	126.8	65.1	55.0	51.6	51.6
85°	71.7	36.7	31.7	31.7	31.7
87.5°	26.8	13.3	13.3	11.7	11.7
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	7.42	8.19	8.45	9.22	10.61	3.39	4.16	4.42	5.19	6.58
	3H	9.09	9.78	10.14	10.82	12.23	4.58	5.27	5.62	6.31	7.71
	4H	9.70	10.35	10.75	11.40	12.81	5.03	5.68	6.08	6.72	8.14
	6H	10.12	10.72	11.18	11.77	13.19	5.35	5.94	6.41	6.99	8.42
	8H	10.24	10.81	11.31	11.88	13.30	5.44	6.00	6.50	7.07	8.49
	12H	10.31	10.84	11.38	11.90	13.35	5.48	6.02	6.55	7.08	8.52
4H	2H	7.43	8.08	8.49	9.13	10.54	3.98	4.63	5.04	5.68	7.09
	3H	9.26	9.80	10.32	10.87	12.30	5.33	5.87	6.40	6.94	8.37
	4H	9.95	10.44	11.02	11.51	12.95	5.88	6.37	6.95	7.43	8.88
	6H	10.46	10.88	11.54	11.97	13.41	6.29	6.72	7.37	7.80	9.25
	8H	10.63	11.03	11.72	12.11	13.57	6.42	6.82	7.50	7.90	9.35
	12H	10.73	11.08	11.83	12.18	13.64	6.48	6.84	7.58	7.94	9.40
8H	4H	9.91	10.31	10.99	11.39	12.84	6.15	6.55	7.23	7.63	9.09
	6H	10.48	10.80	11.58	11.92	13.38	6.67	7.00	7.77	8.12	9.57
	8H	10.69	10.98	11.80	12.08	13.56	6.86	7.15	7.97	8.25	9.73
	12H	10.83	11.08	11.94	12.18	13.69	6.98	7.23	8.09	8.33	9.84
12H	4H	9.86	10.22	10.96	11.31	12.77	6.15	6.51	7.25	7.60	9.07
	6H	10.45	10.74	11.56	11.84	13.32	6.72	7.01	7.83	8.11	9.58
	8H	10.67	10.92	11.78	12.02	13.53	6.93	7.18	8.04	8.28	9.79