

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: P927594

Luminaire Tested: DFN2DIP-HX4F0-060D040US840-RLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P927594
REPORT IS A COMBINATION OF REPORTS P900824 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-060D040US840-RLLONL
Description: 4 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

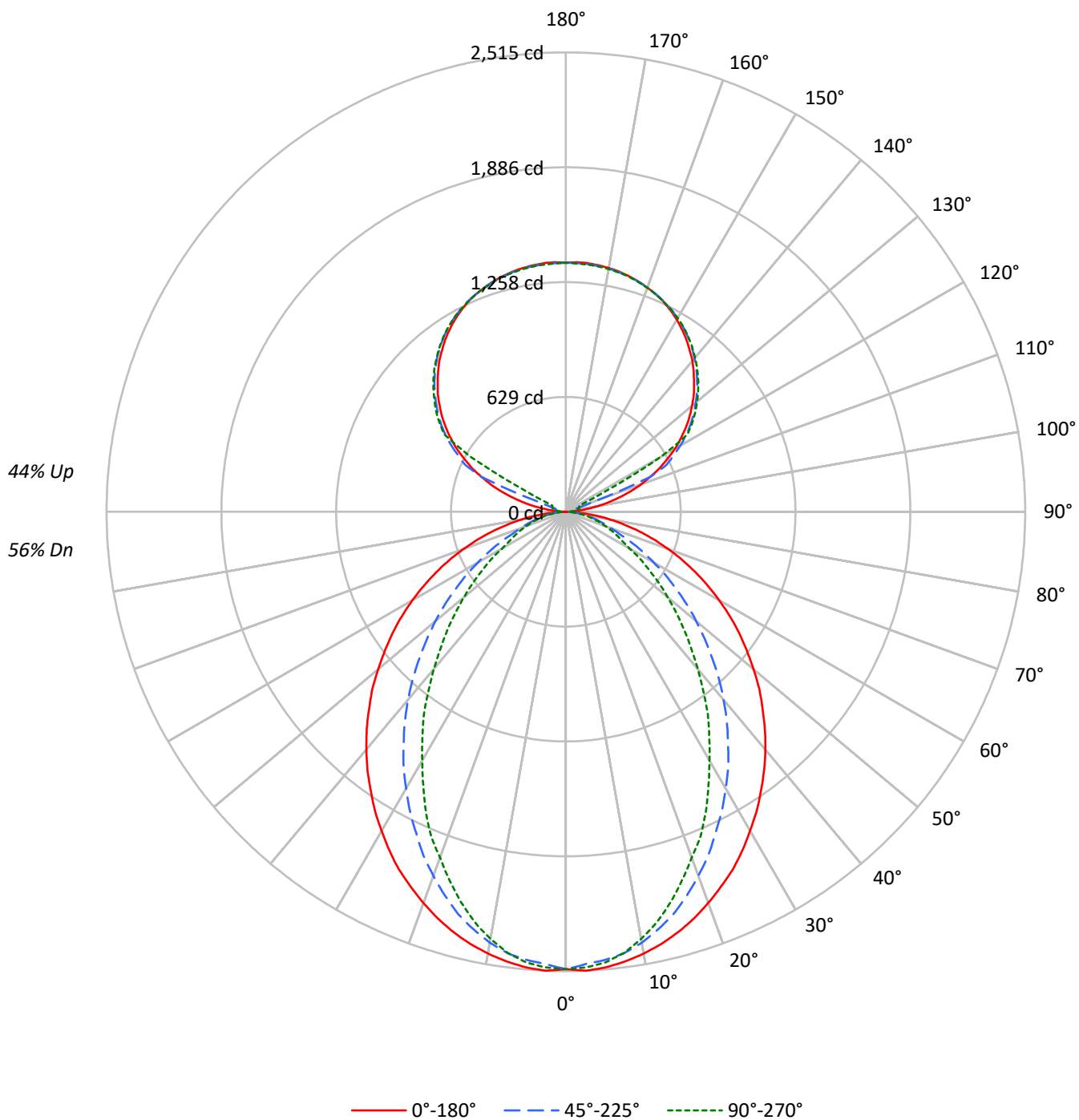
Lumens per Lamp: N/A
Luminaire Lumens: 9148.8 lumens
Efficiency: N/A
Efficacy: 108.5 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 84.3
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.099
Total Harmonic Distortion (THDi): 0.979
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	109	109	109	109		101	101	101	101		87	87	87		74	74	74		62	62	62
1	100	96	92	88		93	89	86	83		77	75	72		66	64	63		56	54	53
2	91	84	78	73		85	79	73	69		68	64	61		58	56	53		50	48	46
3	84	74	67	62		78	70	63	58		61	56	52		52	49	46		44	42	40
4	77	66	59	53		71	62	55	50		54	49	45		47	43	40		40	37	35
5	71	59	51	46		66	56	49	43		49	43	39		42	38	35		36	33	31
6	65	54	46	40		61	50	43	38		44	39	34		39	34	31		33	30	27
7	61	49	41	35		56	46	39	34		40	35	30		35	31	27		30	27	24
8	56	44	37	31		52	42	35	30		37	31	27		32	28	25		28	25	22
9	53	41	33	28		49	38	32	27		34	28	25		30	25	22		26	23	20
10	49	37	30	25		46	35	29	24		31	26	22		28	23	20		24	21	18

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1862	1862	1862
5°	1865	1833	1844
10°	1847	1797	1784
15°	1821	1738	1692
20°	1788	1656	1578
25°	1754	1564	1468
30°	1708	1470	1329
35°	1663	1369	1206
40°	1617	1265	1066
45°	1563	1149	939
50°	1508	1032	814
55°	1450	906	695
60°	1384	776	572
65°	1307	642	515
70°	1214	518	466
75°	1098	457	424
80°	928	384	368
85°	649	257	277

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 1563 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	234.7	2.6
10°-20°	644.3	7.0
20°-30°	904.5	9.9
30°-40°	986.0	10.8
40°-50°	906.2	9.9
50°-60°	711.7	7.8
60°-70°	463.3	5.1
70°-80°	238.5	2.6
80°-90°	63.3	0.7
90°-100°	44.9	0.5
100°-110°	167.6	1.8
110°-120°	444.4	4.9
120°-130°	737.1	8.1
130°-140°	783.0	8.6
140°-150°	727.7	8.0
150°-160°	585.0	6.4
160°-170°	377.0	4.1
170°-180°	129.8	1.4
0°-30°	1783.5	19.5
0°-40°	2769.5	30.3
0°-60°	4387.4	48.0
0°-90°	5152.4	56.3
90°-120°	656.9	7.2
90°-150°	2904.6	31.7
90°-180°	3996.0	43.7
0°-180°	9148.8	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2504	2504	2504	2504	2504	
5°	2504	2493	2463	2484	2477	237
15°	2382	2357	2280	2237	2214	671
25°	2162	2089	1940	1847	1813	994
35°	1863	1747	1548	1405	1355	1166
45°	1523	1371	1133	972	918	1176
55°	1158	981	736	601	558	1035
65°	782	598	394	317	310	775
75°	417	258	181	165	163	441
85°	97	50	43	43	43	112
90°	1	12	20	25	27	9
95°	64	32	38	43	42	76
105°	300	330	60	71	75	320
115°	567	584	609	152	81	558
125°	802	815	834	840	843	715
135°	992	1008	1017	1027	1025	767
145°	1151	1150	1167	1174	1169	720
155°	1268	1259	1270	1276	1268	584
165°	1336	1330	1333	1340	1333	377
175°	1366	1359	1361	1368	1358	130
180°	1363	1363	1363	1363	1363	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2504.1	2504.1	2504.1	2504.1	2504.1
2.5°	2515.4	2504.1	2479.1	2501.9	2497.3
5°	2504.1	2492.8	2463.2	2483.7	2476.9
7.5°	2483.7	2470.2	2438.5	2447.4	2436.0
10°	2456.4	2440.6	2395.4	2388.5	2374.9
12.5°	2422.6	2402.1	2340.8	2327.4	2302.3
15°	2381.7	2356.7	2279.7	2236.7	2214.1
17.5°	2334.2	2297.8	2202.6	2152.8	2116.5
20°	2279.7	2234.3	2121.1	2064.5	2014.6
22.5°	2220.9	2168.6	2037.2	1960.2	1926.3
25°	2162.0	2089.4	1939.8	1847.0	1812.9
27.5°	2091.8	2014.6	1849.1	1742.6	1690.5
30°	2017.0	1930.6	1749.4	1634.0	1572.7
32.5°	1944.4	1840.1	1654.5	1518.3	1461.6
35°	1862.9	1747.3	1547.9	1405.0	1355.1
37.5°	1783.5	1658.7	1448.2	1291.6	1235.1
40°	1699.6	1563.8	1343.7	1182.9	1124.0
42.5°	1613.6	1468.6	1239.6	1071.8	1015.4
45°	1522.9	1370.9	1133.2	972.0	917.7
47.5°	1436.8	1276.0	1031.2	870.1	820.4
50°	1341.6	1180.8	931.4	774.9	727.6
52.5°	1248.5	1078.6	836.2	686.7	643.6
55°	1157.9	981.2	736.4	600.6	557.5
57.5°	1065.1	883.8	648.2	521.3	484.9
60°	969.9	788.7	555.2	439.8	403.4
62.5°	877.1	695.9	475.8	367.2	349.1
65°	781.9	598.2	394.3	317.4	310.4
67.5°	691.2	507.5	317.4	278.7	271.9
70°	596.0	419.3	262.7	240.2	231.0
72.5°	505.4	337.6	219.7	201.8	197.1
75°	416.9	258.2	181.3	165.4	163.3
77.5°	328.7	183.5	142.8	133.7	129.2
80°	246.9	131.5	108.7	99.8	99.8
82.5°	172.2	88.5	74.7	70.2	70.2
85°	97.3	49.8	43.0	43.0	43.0
87.5°	36.4	18.1	18.1	15.9	15.9
90°	0.9	11.8	19.7	24.7	26.6
92.5°	24.7	20.7	23.6	25.6	26.6
95°	64.0	31.5	38.4	43.4	42.4
97.5°	115.4	34.5	50.3	53.3	54.2
100°	174.6	39.5	56.2	64.0	66.0
102.5°	239.6	237.8	58.2	69.0	72.0
105°	299.8	329.5	60.2	71.0	74.9
107.5°	369.9	394.5	62.2	73.0	76.9
110°	437.0	457.6	172.7	74.0	77.9



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	500.2	517.8	501.1	75.9	79.0
115°	567.1	583.9	608.6	151.9	81.0
117.5°	625.4	645.1	661.9	520.8	262.3
120°	690.5	705.2	723.0	734.9	601.7
122.5°	745.6	761.5	781.3	787.1	788.1
125°	801.9	814.8	833.5	840.5	843.4
127.5°	853.2	867.0	881.9	891.8	892.7
130°	901.5	917.4	928.1	939.0	938.1
132.5°	950.8	963.8	974.6	983.4	982.5
135°	992.3	1008.2	1017.0	1026.9	1024.9
137.5°	1035.7	1047.5	1057.5	1067.3	1064.3
140°	1078.1	1086.0	1096.8	1105.7	1100.8
142.5°	1113.7	1120.6	1133.4	1141.2	1136.3
145°	1151.2	1150.2	1166.8	1173.8	1168.8
147.5°	1183.6	1180.7	1197.4	1202.4	1198.5
150°	1215.2	1208.3	1224.2	1230.0	1225.1
152.5°	1241.9	1234.0	1248.7	1254.7	1247.8
155°	1267.5	1258.7	1270.5	1276.4	1268.5
157.5°	1288.2	1280.3	1289.3	1296.2	1288.2
160°	1306.0	1300.0	1306.0	1311.8	1305.0
162.5°	1321.7	1315.9	1320.8	1327.7	1318.8
165°	1335.6	1329.7	1332.6	1339.5	1332.6
167.5°	1346.5	1340.4	1343.5	1350.4	1341.5
170°	1355.4	1349.4	1351.3	1358.3	1349.4
172.5°	1361.2	1355.4	1357.4	1364.2	1355.4
175°	1366.1	1359.2	1361.2	1368.1	1358.3
177.5°	1368.1	1361.2	1362.2	1369.2	1360.3
180°	1363.2	1363.2	1363.2	1363.2	1363.2

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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	9.88	10.76	10.79	11.69	12.87	5.85	6.74	6.76	7.66	8.84
	3H	11.56	12.35	12.48	13.28	14.49	7.05	7.84	7.97	8.77	9.97
	4H	12.17	12.92	13.11	13.86	15.07	7.50	8.25	8.44	9.18	10.40
	6H	12.60	13.29	13.54	14.23	15.46	7.83	8.51	8.77	9.46	10.68
	8H	12.73	13.38	13.68	14.34	15.57	7.92	8.57	8.87	9.53	10.76
	12H	12.79	13.41	13.75	14.37	15.62	7.97	8.59	8.92	9.54	10.79
4H	2H	9.90	10.65	10.84	11.59	12.80	6.45	7.20	7.39	8.14	9.35
	3H	11.74	12.36	12.69	13.33	14.56	7.81	8.43	8.76	9.40	10.63
	4H	12.43	13.00	13.39	13.96	15.22	8.36	8.93	9.32	9.89	11.14
	6H	12.95	13.44	13.93	14.42	15.68	8.79	9.27	9.76	10.26	11.51
	8H	13.13	13.58	14.10	14.56	15.83	8.92	9.37	9.89	10.35	11.62
	12H	13.23	13.64	14.22	14.63	15.91	8.99	9.40	9.98	10.39	11.66
8H	4H	12.41	12.86	13.38	13.84	15.11	8.65	9.10	9.62	10.08	11.35
	6H	12.98	13.35	13.97	14.37	15.64	9.17	9.55	10.17	10.57	11.83
	8H	13.19	13.52	14.20	14.53	15.82	9.36	9.69	10.37	10.70	11.99
	12H	13.33	13.63	14.35	14.63	15.96	9.49	9.78	10.50	10.78	12.11
12H	4H	12.36	12.77	13.35	13.77	15.04	8.66	9.06	9.65	10.06	11.33
	6H	12.95	13.28	13.96	14.29	15.58	9.22	9.55	10.23	10.56	11.84
	8H	13.18	13.47	14.19	14.47	15.80	9.43	9.73	10.45	10.73	12.06