

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: P902905

Luminaire Tested: DFN2DIP-PN2F0-040D060US830-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P902905
REPORT IS A COMBINATION OF REPORTS P901025 AND P897905
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-PN2F0-040D060US830-FLLONL
Description: 2 foot, Pentagon Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

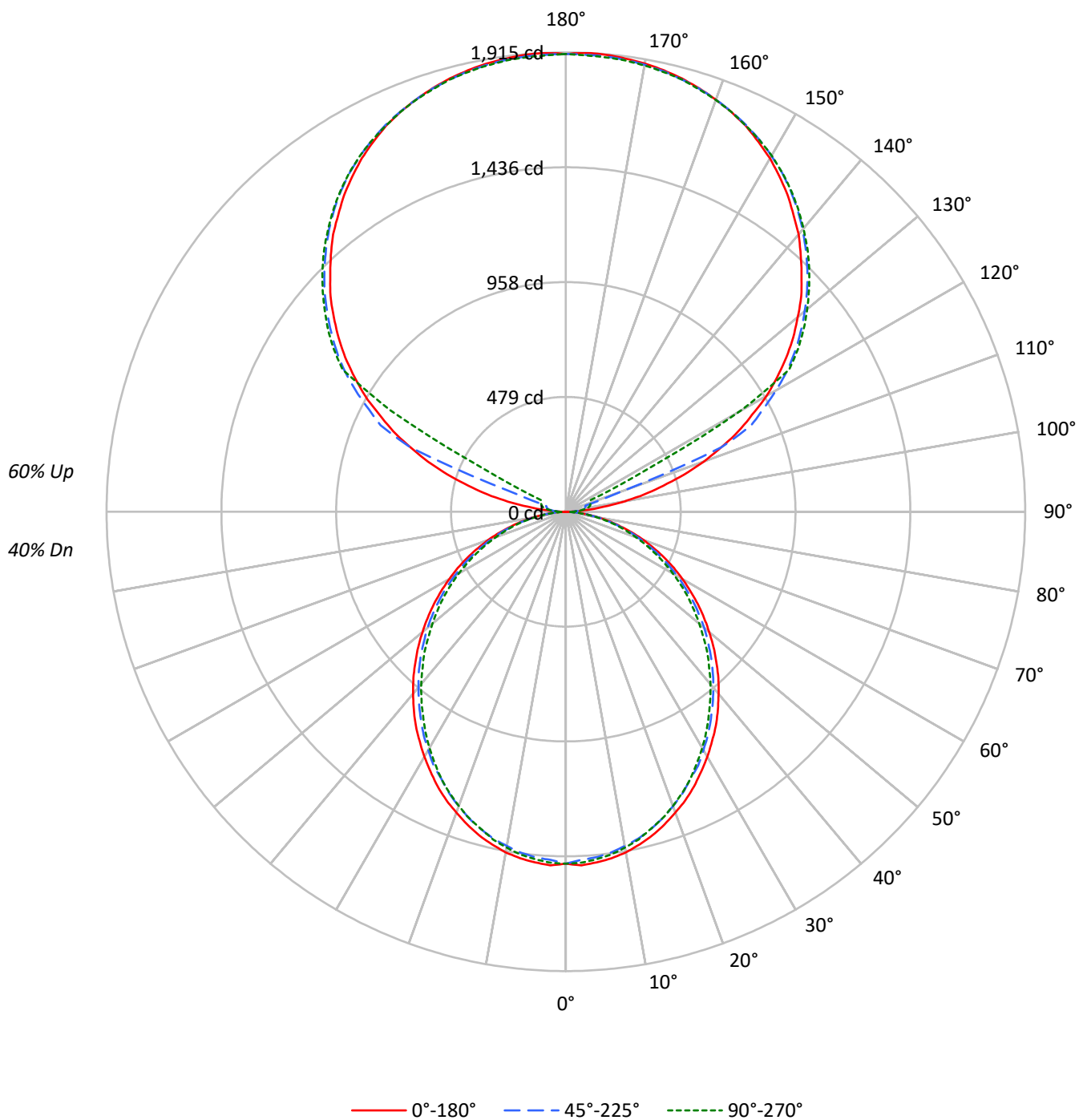
Lumens per Lamp: N/A
Luminaire Lumens: 9331.2 lumens
Efficiency: N/A
Efficacy: 101.5 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 2.17' x L: 2.29' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 91.9
Input Voltage (V): 120
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
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10
RCR																				
0	105	105	105	105	95	95	95	95	78	78	78	62	62	62	47	47	47	47	47	40
1	96	91	87	84	87	83	80	77	68	66	64	54	53	51	41	41	40	40	40	34
2	87	80	74	69	79	73	68	63	60	56	53	48	45	43	37	35	33	33	33	28
3	79	70	63	57	72	64	58	53	53	48	44	42	39	36	32	30	28	28	28	24
4	73	62	54	48	66	57	50	45	47	42	38	37	34	31	29	26	24	24	24	21
5	67	55	47	41	60	50	44	38	42	37	33	34	30	27	26	23	21	21	21	18
6	61	49	41	36	56	45	38	33	38	32	28	30	26	23	24	21	19	19	19	16
7	57	45	37	31	51	41	34	29	34	29	25	28	24	21	22	19	17	17	17	14
8	52	40	33	27	48	37	30	26	31	26	22	25	21	18	20	17	15	15	15	12
9	49	37	29	24	44	34	27	23	28	23	20	23	19	17	18	15	13	13	13	11
10	46	34	27	22	41	31	25	20	26	21	18	21	18	15	17	14	12	12	12	10

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3177	3177	3177
5°	3177	3126	3149
10°	3146	3077	3102
15°	3095	3020	3031
20°	3027	2943	2958
25°	2960	2852	2875
30°	2877	2767	2770
35°	2797	2668	2659
40°	2701	2567	2554
45°	2604	2466	2445
50°	2498	2360	2320
55°	2387	2237	2205
60°	2261	2092	2071
65°	2122	1941	1915
70°	1946	1757	1745
75°	1705	1537	1582
80°	1410	1255	1284
85°	958	792	805

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2604 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	138.1	1.5
10°-20°	388.5	4.2
20°-30°	570.9	6.1
30°-40°	663.1	7.1
40°-50°	662.3	7.1
50°-60°	577.5	6.2
60°-70°	426.9	4.6
70°-80°	241.5	2.6
80°-90°	67.1	0.7
90°-100°	62.9	0.7
100°-110°	234.6	2.5
110°-120°	622.2	6.7
120°-130°	1032.0	11.1
130°-140°	1096.2	11.7
140°-150°	1018.8	10.9
150°-160°	819.1	8.8
160°-170°	527.8	5.7
170°-180°	181.7	1.9
0°-30°	1097.5	11.8
0°-40°	1760.6	18.9
0°-60°	3000.3	32.2
0°-90°	3735.8	40.0
90°-120°	919.8	9.9
90°-150°	4066.8	43.6
90°-180°	5595.0	60.0
0°-180°	9331.2	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1467	1467	1467	1467	1467	
5°	1467	1461	1446	1457	1454	139
15°	1396	1388	1370	1375	1368	393
25°	1264	1253	1229	1231	1229	582
35°	1090	1076	1054	1045	1038	681
45°	887	878	856	841	835	685
55°	672	663	646	629	622	600
65°	453	444	430	418	411	448
75°	237	234	227	219	222	253
85°	58	56	55	51	49	64
90°	1	17	28	35	37	9
95°	90	44	54	61	59	106
105°	420	461	84	99	105	449
115°	794	818	852	213	113	782
125°	1123	1141	1167	1177	1181	1001
135°	1389	1412	1424	1438	1435	1073
145°	1612	1610	1634	1643	1636	1008
155°	1775	1762	1779	1787	1776	818
165°	1870	1862	1866	1876	1866	528
175°	1913	1903	1906	1915	1902	182
180°	1909	1909	1909	1909	1909	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1467.0	1467.0	1467.0	1467.0	1467.0
2.5°	1475.5	1468.5	1452.9	1467.0	1464.3
5°	1467.0	1461.4	1445.9	1457.1	1454.4
7.5°	1457.1	1448.7	1433.1	1444.5	1441.7
10°	1441.7	1431.8	1414.9	1426.2	1421.9
12.5°	1420.4	1412.0	1395.2	1402.2	1399.3
15°	1396.5	1388.1	1369.7	1375.4	1368.4
17.5°	1366.9	1358.5	1340.1	1347.1	1340.1
20°	1334.4	1326.0	1306.3	1310.4	1304.9
22.5°	1302.0	1289.3	1270.9	1270.9	1268.1
25°	1263.9	1252.6	1228.7	1231.4	1228.7
27.5°	1221.5	1211.6	1193.4	1189.2	1182.2
30°	1179.3	1168.0	1146.9	1142.6	1137.0
32.5°	1134.2	1125.8	1103.2	1094.7	1088.9
35°	1090.4	1076.4	1053.8	1045.3	1038.2
37.5°	1041.0	1028.3	1005.7	995.9	988.8
40°	990.3	978.9	956.3	943.8	938.1
42.5°	940.9	929.5	907.1	892.9	884.5
45°	887.3	877.5	856.2	840.8	835.1
47.5°	835.1	825.2	802.7	787.1	778.7
50°	780.0	773.0	753.3	733.5	726.4
52.5°	726.4	716.6	698.3	682.8	672.9
55°	671.6	663.0	646.1	629.1	622.2
57.5°	616.4	609.4	591.0	574.1	568.4
60°	561.4	555.8	536.1	520.6	516.3
62.5°	507.8	497.9	483.9	469.8	464.1
65°	452.9	444.3	430.3	417.5	410.6
67.5°	396.4	389.3	376.7	366.8	361.2
70°	344.2	338.6	325.8	315.9	310.4
72.5°	290.7	284.9	278.0	268.1	263.8
75°	237.0	234.2	227.1	218.7	221.5
77.5°	189.0	183.3	180.5	176.3	172.1
80°	141.1	139.6	136.8	132.6	129.8
82.5°	96.0	96.0	94.6	88.9	88.9
85°	57.8	56.5	55.0	50.7	49.4
87.5°	25.4	22.6	19.8	15.6	14.0
90°	1.3	16.6	27.5	34.6	37.2
92.5°	34.6	29.0	33.1	35.9	37.2
95°	89.7	44.1	53.8	60.9	59.4
97.5°	161.6	48.4	70.3	74.6	76.0
100°	244.5	55.2	78.7	89.7	92.5
102.5°	335.5	332.9	81.5	96.6	100.9
105°	419.8	461.3	84.3	99.3	105.0
107.5°	517.9	552.3	87.1	102.2	107.7
110°	611.9	640.7	241.8	103.7	109.1

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	700.2	725.0	701.5	106.2	110.6
115°	794.1	817.6	852.2	212.7	113.3
117.5°	875.5	903.1	926.7	729.2	367.3
120°	966.8	987.4	1012.4	1028.9	842.4
122.5°	1044.0	1066.1	1093.8	1102.0	1103.5
125°	1122.8	1140.8	1167.0	1176.7	1180.7
127.5°	1194.6	1213.9	1234.7	1248.5	1249.8
130°	1262.3	1284.4	1299.5	1314.8	1313.4
132.5°	1331.3	1349.3	1364.4	1376.9	1375.5
135°	1389.4	1411.6	1423.8	1437.8	1434.9
137.5°	1450.0	1466.6	1480.5	1494.3	1490.3
140°	1509.4	1520.6	1535.7	1548.1	1541.2
142.5°	1559.2	1569.0	1586.9	1597.8	1590.9
145°	1611.7	1610.2	1633.7	1643.4	1636.5
147.5°	1657.2	1653.0	1676.5	1683.4	1678.0
150°	1701.5	1691.8	1713.9	1722.1	1715.2
152.5°	1738.7	1727.7	1748.3	1756.7	1747.0
155°	1774.6	1762.3	1778.9	1787.1	1776.0
157.5°	1803.6	1792.6	1805.1	1814.8	1803.6
160°	1828.5	1820.1	1828.5	1836.7	1827.1
162.5°	1850.5	1842.3	1849.2	1858.9	1846.4
165°	1869.9	1861.7	1865.8	1875.5	1865.8
167.5°	1885.1	1876.8	1881.0	1890.7	1878.2
170°	1897.6	1889.2	1892.1	1901.7	1889.2
172.5°	1905.8	1897.6	1900.4	1910.1	1897.6
175°	1912.7	1903.0	1905.8	1915.4	1901.7
177.5°	1915.4	1905.8	1907.2	1916.9	1904.5
180°	1908.6	1908.6	1908.6	1908.6	1908.6

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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	10.17	10.95	11.21	12.00	13.40	9.74	10.52	10.78	11.56	12.97
	3H	11.81	12.51	12.86	13.56	14.98	11.33	12.03	12.38	13.08	14.50
	4H	12.38	13.04	13.44	14.10	15.53	11.90	12.56	12.96	13.61	15.05
	6H	12.76	13.37	13.83	14.43	15.87	12.27	12.88	13.34	13.94	15.39
	8H	12.85	13.43	13.93	14.51	15.95	12.37	12.95	13.44	14.02	15.46
	12H	12.89	13.44	13.97	14.51	15.97	12.40	12.95	13.48	14.02	15.48
4H	2H	10.62	11.28	11.68	12.33	13.77	10.27	10.93	11.33	11.98	13.42
	3H	12.45	13.00	13.52	14.08	15.53	12.05	12.60	13.12	13.69	15.13
	4H	13.14	13.65	14.22	14.72	16.19	12.73	13.24	13.81	14.31	15.78
	6H	13.64	14.07	14.72	15.17	16.63	13.22	13.65	14.30	14.75	16.21
	8H	13.77	14.18	14.86	15.27	16.75	13.35	13.76	14.44	14.85	16.32
	12H	13.83	14.20	14.94	15.30	16.79	13.40	13.77	14.51	14.87	16.35
8H	4H	13.32	13.73	14.41	14.82	16.30	12.96	13.36	14.04	14.45	15.93
	6H	13.93	14.26	15.04	15.39	16.87	13.55	13.89	14.66	15.02	16.49
	8H	14.13	14.43	15.25	15.54	17.03	13.75	14.05	14.87	15.16	16.65
	12H	14.25	14.51	15.37	15.62	17.15	13.85	14.11	14.97	15.22	16.75
12H	4H	13.30	13.67	14.41	14.77	16.25	12.94	13.31	14.05	14.41	15.89
	6H	13.95	14.25	15.07	15.36	16.85	13.59	13.88	14.71	15.00	16.49
	8H	14.17	14.43	15.30	15.54	17.07	13.80	14.06	14.93	15.17	16.70