

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: P924117

Luminaire Tested: DFN2DIP-4P4F0-030D070US950-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P924117
REPORT IS A COMBINATION OF REPORTS P900648 AND P897523
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P4F0-030D070US950-RLLONL
Description: 4 foot, 90deg - 4way Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

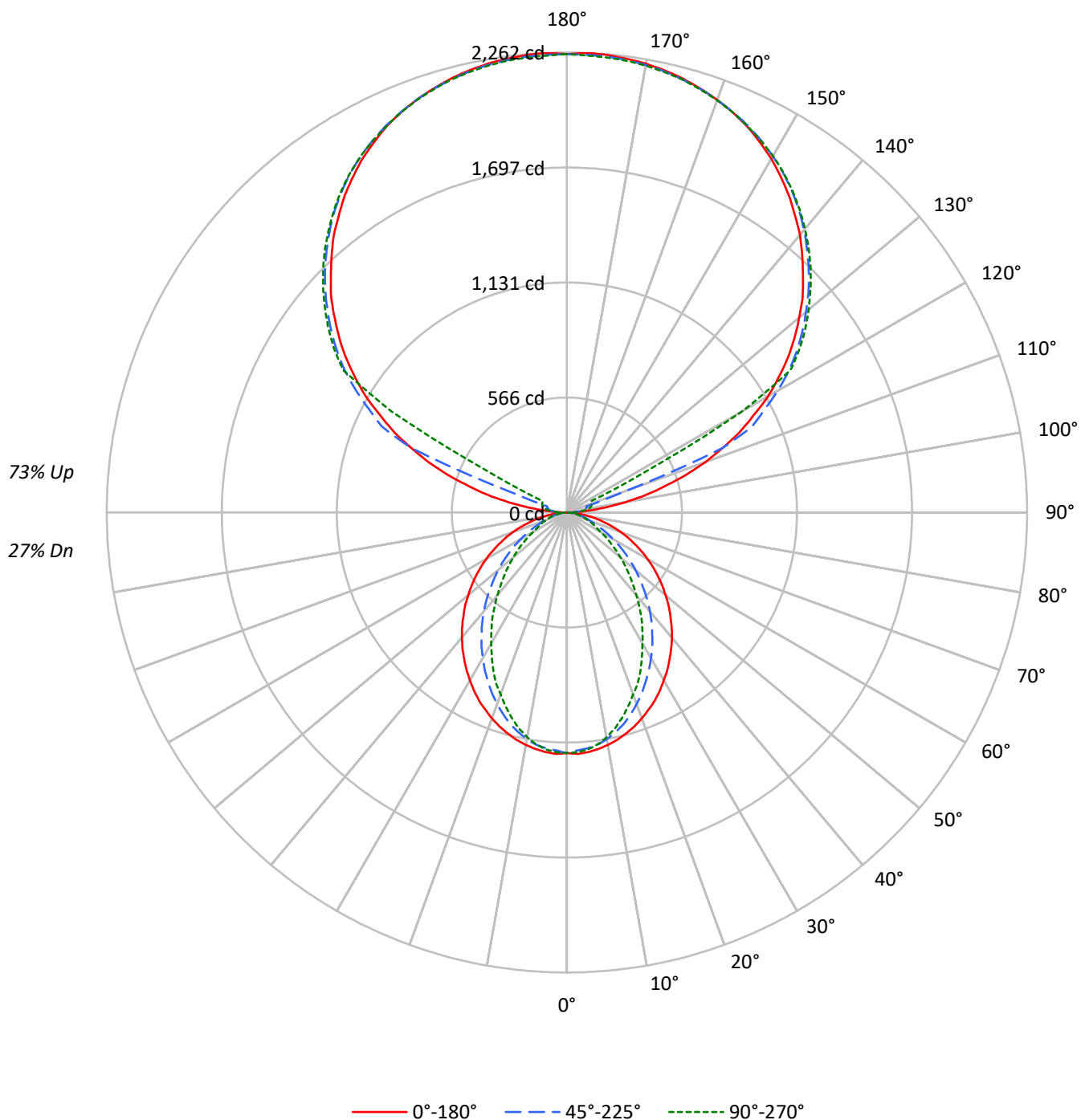
Lumens per Lamp: N/A
Luminaire Lumens: 9043.9 lumens
Efficiency: N/A
Efficacy: 101.8 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 4.07' x L: 4.07' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 88.8
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.983
Total Harmonic Distortion (THDi): 0.073
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	102	102	102	102	91	91	91	91	71	71	71	52	52	52	35	35	35
1	93	89	85	82	83	79	76	74	62	60	58	46	45	44	31	31	30
2	85	78	72	67	75	70	65	61	55	51	49	41	39	37	28	27	26
3	77	69	62	56	69	62	56	51	48	44	41	36	34	31	25	23	22
4	71	61	53	48	63	55	48	43	43	39	35	32	29	27	22	21	19
5	65	54	46	41	58	49	42	37	39	34	30	29	26	23	20	18	17
6	60	48	41	35	53	44	37	32	35	30	26	26	23	21	18	16	15
7	55	44	36	31	49	39	33	28	31	27	23	24	21	18	17	15	13
8	51	40	32	27	46	36	29	25	29	24	21	22	19	16	16	13	12
9	48	36	29	24	43	33	26	22	26	22	18	20	17	15	14	12	11
10	44	33	26	22	40	30	24	20	24	20	16	19	15	13	13	11	10

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	767	767	767
5°	769	755	760
10°	761	741	736
15°	751	717	698
20°	737	683	651
25°	723	645	606
30°	704	607	549
35°	685	565	498
40°	666	522	441
45°	644	475	388
50°	621	426	337
55°	598	375	288
60°	570	321	237
65°	539	266	214
70°	500	215	194
75°	452	190	177
80°	383	160	154
85°	267	108	118

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 1163 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	110.9	1.2
10°-20°	304.3	3.4
20°-30°	427.3	4.7
30°-40°	465.7	5.1
40°-50°	428.1	4.7
50°-60°	336.2	3.7
60°-70°	218.8	2.4
70°-80°	112.6	1.2
80°-90°	32.7	0.4
90°-100°	74.3	0.8
100°-110°	277.0	3.1
110°-120°	734.8	8.1
120°-130°	1218.6	13.5
130°-140°	1294.5	14.3
140°-150°	1203.1	13.3
150°-160°	967.2	10.7
160°-170°	623.3	6.9
170°-180°	214.5	2.4
0°-30°	842.5	9.3
0°-40°	1308.2	14.5
0°-60°	2072.5	22.9
0°-90°	2436.6	26.9
90°-120°	1086.1	12.0
90°-150°	4802.2	53.1
90°-180°	6607.0	73.1
0°-180°	9043.9	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1183	1183	1183	1183	1183	
5°	1183	1178	1164	1173	1170	112
15°	1125	1113	1077	1057	1046	317
25°	1021	987	916	872	856	470
35°	880	825	731	664	640	551
45°	719	648	535	459	434	556
55°	547	464	348	284	263	489
65°	369	283	186	150	147	366
75°	197	122	86	78	77	208
85°	46	24	20	20	20	53
90°	2	20	32	41	44	8
95°	106	52	64	72	70	125
105°	496	545	100	117	124	530
115°	938	965	1006	251	134	923
125°	1326	1347	1378	1390	1394	1182
135°	1641	1667	1681	1698	1694	1267
145°	1903	1902	1929	1941	1932	1190
155°	2096	2081	2100	2110	2097	966
165°	2208	2198	2203	2215	2203	624
175°	2259	2247	2250	2262	2246	215
180°	2254	2254	2254	2254	2254	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1182.9	1182.9	1182.9	1182.9	1182.9
2.5°	1188.2	1182.9	1171.0	1181.8	1179.7
5°	1182.9	1177.5	1163.6	1173.2	1170.0
7.5°	1173.2	1166.8	1151.9	1156.1	1150.7
10°	1160.4	1152.9	1131.5	1128.2	1121.9
12.5°	1144.3	1134.7	1105.8	1099.4	1087.6
15°	1125.1	1113.2	1076.9	1056.6	1045.9
17.5°	1102.5	1085.5	1040.4	1017.0	999.8
20°	1076.9	1055.4	1001.9	975.3	951.6
22.5°	1049.1	1024.4	962.3	926.0	909.9
25°	1021.3	986.9	916.3	872.4	856.3
27.5°	988.1	951.6	873.5	823.2	798.5
30°	952.8	912.0	826.4	771.9	742.9
32.5°	918.4	869.2	781.5	717.2	690.4
35°	880.0	825.3	731.1	663.7	640.1
37.5°	842.5	783.5	684.0	610.1	583.5
40°	802.9	738.7	634.8	558.8	531.0
42.5°	762.2	693.7	585.6	506.3	479.6
45°	719.4	647.6	535.3	459.2	433.5
47.5°	678.7	602.7	487.1	411.0	387.5
50°	633.7	557.7	440.0	366.0	343.6
52.5°	589.8	509.5	395.1	324.4	304.0
55°	546.9	463.5	347.8	283.7	263.4
57.5°	503.1	417.5	306.2	246.2	229.1
60°	458.1	372.5	262.3	207.7	190.6
62.5°	414.3	328.7	224.8	173.4	164.9
65°	369.3	282.6	186.2	149.9	146.6
67.5°	326.6	239.7	149.9	131.7	128.4
70°	281.5	198.1	124.1	113.4	109.1
72.5°	238.7	159.4	103.8	95.3	93.1
75°	196.9	122.0	85.7	78.1	77.1
77.5°	155.2	86.6	67.4	63.2	61.0
80°	116.7	62.1	51.3	47.1	47.1
82.5°	81.3	41.8	35.3	33.2	33.2
85°	46.0	23.5	20.3	20.3	20.3
87.5°	17.2	8.5	8.5	7.5	7.5
90°	1.5	19.6	32.5	40.8	44.0
92.5°	40.8	34.2	39.1	42.5	44.0
95°	105.9	52.1	63.5	71.8	70.1
97.5°	190.7	57.1	83.1	88.1	89.7
100°	288.8	65.3	92.9	105.9	109.2
102.5°	396.2	393.1	96.3	114.1	119.1
105°	495.8	544.7	99.5	117.3	123.9
107.5°	611.5	652.2	102.8	120.7	127.3
110°	722.6	756.6	285.4	122.4	128.8

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	826.9	856.1	828.5	125.5	130.5
115°	937.7	965.4	1006.2	251.2	133.8
117.5°	1033.9	1066.5	1094.3	861.0	433.8
120°	1141.6	1166.0	1195.5	1215.0	994.8
122.5°	1232.8	1258.9	1291.7	1301.4	1303.1
125°	1325.8	1347.0	1378.1	1389.5	1394.3
127.5°	1410.6	1433.4	1458.0	1474.3	1475.8
130°	1490.5	1516.7	1534.5	1552.5	1551.0
132.5°	1572.1	1593.4	1611.2	1625.9	1624.4
135°	1640.6	1666.7	1681.3	1697.7	1694.5
137.5°	1712.2	1731.9	1748.3	1764.6	1759.7
140°	1782.4	1795.5	1813.4	1828.1	1819.9
142.5°	1841.2	1852.7	1873.8	1886.7	1878.6
145°	1903.2	1901.5	1929.2	1940.6	1932.5
147.5°	1956.8	1952.1	1979.7	1987.8	1981.5
150°	2009.1	1997.8	2023.9	2033.5	2025.4
152.5°	2053.1	2040.1	2064.6	2074.4	2063.0
155°	2095.6	2081.0	2100.5	2110.2	2097.3
157.5°	2129.8	2116.8	2131.5	2143.0	2129.8
160°	2159.3	2149.4	2159.3	2168.9	2157.5
162.5°	2185.2	2175.5	2183.6	2195.1	2180.4
165°	2208.0	2198.4	2203.2	2214.6	2203.2
167.5°	2226.1	2216.1	2221.2	2232.6	2218.0
170°	2240.8	2230.9	2234.2	2245.6	2230.9
172.5°	2250.5	2240.8	2244.1	2255.4	2240.8
175°	2258.6	2247.1	2250.5	2261.8	2245.6
177.5°	2261.8	2250.5	2252.2	2263.7	2248.9
180°	2253.7	2253.7	2253.7	2253.7	2253.7

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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	3.58	4.25	4.71	5.37	6.94	0.00	0.21	0.67	1.33	2.90
	3H	5.25	5.85	6.39	6.98	8.56	0.71	1.31	1.86	2.45	4.03
	4H	5.85	6.42	7.01	7.55	9.14	1.16	1.73	2.31	2.86	4.45
	6H	6.27	6.79	7.43	7.93	9.53	1.47	2.00	2.63	3.13	4.73
	8H	6.39	6.89	7.56	8.04	9.64	1.56	2.06	2.72	3.21	4.80
	12H	6.45	6.93	7.62	8.07	9.69	1.60	2.07	2.77	3.22	4.83
4H	2H	3.57	4.14	4.74	5.28	6.87	0.11	0.68	1.28	1.82	3.41
	3H	5.40	5.87	6.56	7.03	8.63	1.45	1.93	2.62	3.09	4.69
	4H	6.09	6.52	7.25	7.67	9.29	1.99	2.43	3.16	3.58	5.20
	6H	6.60	6.97	7.77	8.14	9.75	2.41	2.78	3.58	3.95	5.56
	8H	6.77	7.12	7.94	8.28	9.91	2.53	2.88	3.71	4.05	5.67
	12H	6.86	7.18	8.05	8.35	9.98	2.59	2.91	3.78	4.08	5.71
8H	4H	6.04	6.39	7.21	7.55	9.18	2.27	2.62	3.44	3.78	5.40
	6H	6.61	6.89	7.80	8.10	9.72	2.78	3.07	3.97	4.27	5.90
	8H	6.83	7.08	8.02	8.26	9.90	2.97	3.22	4.17	4.41	6.05
	12H	6.96	7.18	8.16	8.36	10.04	3.09	3.31	4.29	4.49	6.16
12H	4H	5.99	6.30	7.17	7.48	9.11	2.27	2.58	3.45	3.75	5.39
	6H	6.58	6.83	7.78	8.02	9.66	2.83	3.08	4.03	4.26	5.91
	8H	6.80	7.02	8.00	8.20	9.88	3.04	3.26	4.24	4.44	6.11