

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: P924121

Luminaire Tested: DFN2DIP-4P4F0-030D080US950-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P924121
REPORT IS A COMBINATION OF REPORTS P900660 AND P897523
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P4F0-030D080US950-RLLONL
Description: 4 foot, 90deg - 4way Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

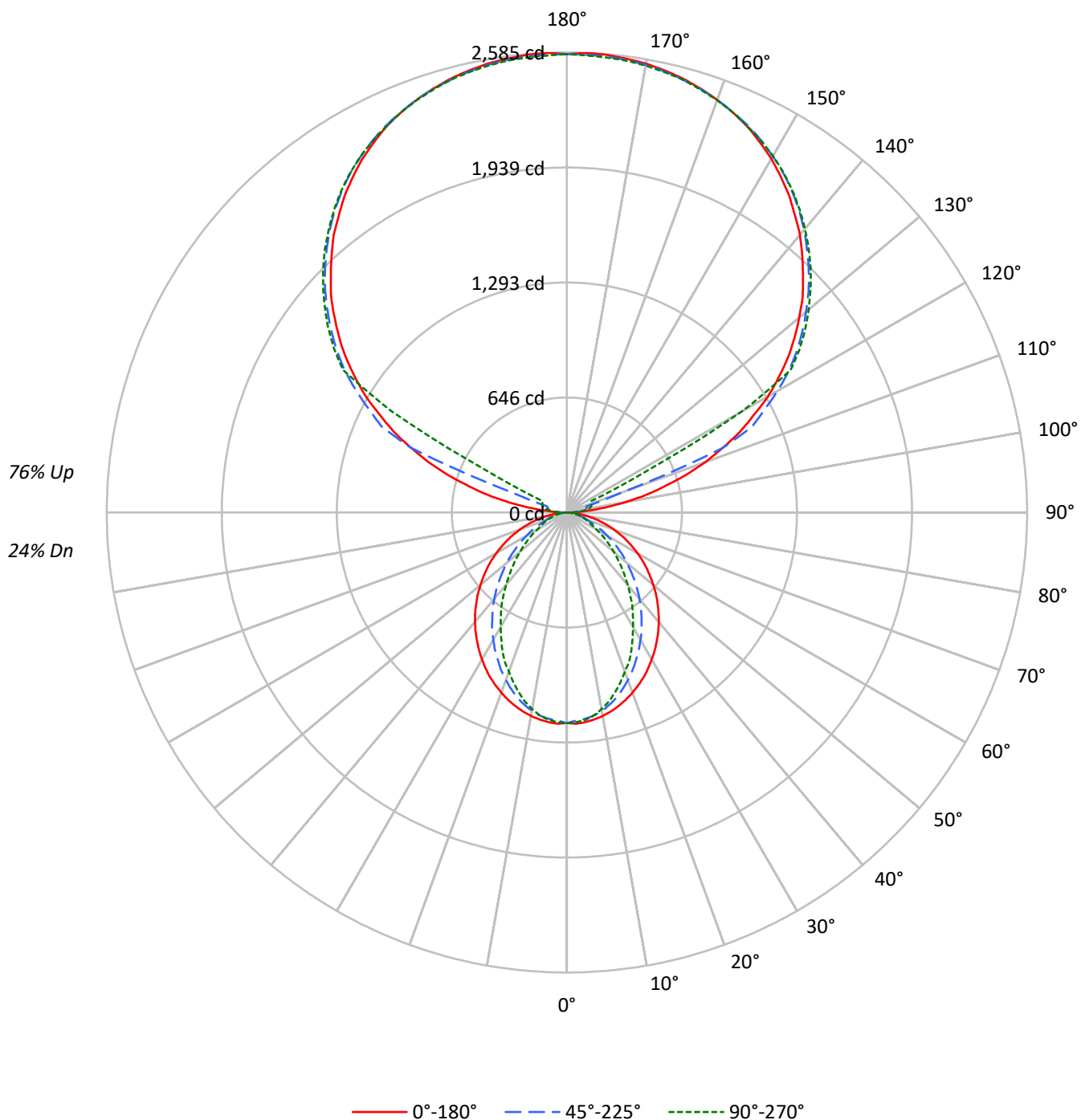
Lumens per Lamp: N/A
Luminaire Lumens: 9988.4 lumens
Efficiency: N/A
Efficacy: 98.7 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 4.07' x L: 4.07' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 101.2
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	101	101	101	101	90	90	90	90	69	69	69	50	50	50	33	33	33
1	92	88	85	81	82	79	76	73	61	59	57	44	43	42	29	28	28
2	84	77	71	67	75	69	64	60	53	50	47	39	37	35	26	25	24
3	77	68	61	56	68	61	55	50	47	43	40	35	32	30	23	22	21
4	70	60	53	47	62	54	48	43	42	38	34	31	28	26	21	19	18
5	65	54	46	40	57	48	42	37	38	33	30	28	25	23	19	17	16
6	59	48	40	35	53	43	37	32	34	29	26	25	22	20	17	15	14
7	55	43	36	30	49	39	32	28	31	26	23	23	20	17	16	14	12
8	51	39	32	27	45	35	29	25	28	23	20	21	18	16	14	13	11
9	47	36	29	24	42	32	26	22	25	21	18	19	16	14	13	11	10
10	44	33	26	21	39	29	23	19	23	19	16	18	15	13	12	11	9

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: 1329 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	110.9	1.1
10°-20°	304.3	3.0
20°-30°	427.3	4.3
30°-40°	465.7	4.7
40°-50°	428.1	4.3
50°-60°	336.2	3.4
60°-70°	218.8	2.2
70°-80°	112.6	1.1
80°-90°	33.3	0.3
90°-100°	84.9	0.9
100°-110°	316.6	3.2
110°-120°	839.7	8.4
120°-130°	1392.7	13.9
130°-140°	1479.4	14.8
140°-150°	1374.9	13.8
150°-160°	1105.4	11.1
160°-170°	712.3	7.1
170°-180°	245.2	2.5
0°-30°	842.5	8.4
0°-40°	1308.2	13.1
0°-60°	2072.5	20.7
0°-90°	2437.2	24.4
90°-120°	1241.3	12.4
90°-150°	5488.3	54.9
90°-180°	7551.0	75.6
0°-180°	9988.4	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	22	37	47	50	9
95°	121	60	73	82	80	143
105°	567	623	114	134	142	605
115°	1072	1103	1150	287	153	1055
125°	1515	1540	1575	1588	1594	1351
135°	1875	1905	1922	1940	1936	1448
145°	2175	2173	2205	2218	2208	1360
155°	2395	2378	2401	2412	2397	1104
165°	2524	2512	2518	2531	2518	713
175°	2581	2568	2572	2585	2566	246
180°	2576	2576	2576	2576	2576	

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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°	1.8	22.3	37.2	46.7	50.3
92.5°	46.7	39.2	44.7	48.5	50.3
95°	121.1	59.5	72.6	82.1	80.1
97.5°	218.0	65.3	94.9	100.7	102.5
100°	330.0	74.6	106.3	121.1	124.8
102.5°	452.9	449.2	110.0	130.3	136.1
105°	566.6	622.6	113.7	134.1	141.7
107.5°	698.9	745.4	117.5	137.9	145.4
110°	825.8	864.7	326.3	139.9	147.2

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	945.0	978.4	946.8	143.4	149.2
115°	1071.6	1103.3	1150.0	287.1	152.9
117.5°	1181.6	1218.8	1250.7	984.0	495.8
120°	1304.7	1332.5	1366.2	1388.5	1136.9
122.5°	1408.9	1438.8	1476.2	1487.3	1489.3
125°	1515.1	1539.5	1574.9	1587.9	1593.5
127.5°	1612.1	1638.2	1666.4	1684.9	1686.7
130°	1703.5	1733.3	1753.7	1774.3	1772.5
132.5°	1796.7	1821.0	1841.4	1858.2	1856.4
135°	1875.0	1904.9	1921.5	1940.3	1936.5
137.5°	1956.9	1979.3	1998.1	2016.7	2011.1
140°	2037.0	2052.1	2072.5	2089.3	2079.9
142.5°	2104.3	2117.3	2141.4	2156.3	2147.0
145°	2175.1	2173.1	2204.8	2217.9	2208.5
147.5°	2236.5	2230.9	2262.5	2271.9	2264.5
150°	2296.2	2283.1	2313.0	2324.0	2314.8
152.5°	2346.5	2331.6	2359.4	2370.8	2357.7
155°	2394.9	2378.3	2400.6	2411.7	2396.9
157.5°	2434.0	2419.2	2436.0	2449.1	2434.0
160°	2467.7	2456.5	2467.7	2478.8	2465.7
162.5°	2497.4	2486.3	2495.6	2508.6	2491.8
165°	2523.5	2512.5	2518.0	2531.0	2518.0
167.5°	2544.0	2532.8	2538.5	2551.6	2534.8
170°	2560.9	2549.6	2553.4	2566.5	2549.6
172.5°	2572.0	2560.9	2564.6	2577.7	2560.9
175°	2581.2	2568.2	2572.0	2585.0	2566.5
177.5°	2585.0	2572.0	2573.9	2587.0	2570.2
180°	2575.7	2575.7	2575.7	2575.7	2575.7

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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	3.18	3.84	4.33	4.97	6.57	0.00	0.00	0.29	0.93	2.53
	3H	4.85	5.44	6.01	6.58	8.19	0.31	0.90	1.48	2.05	3.66
	4H	5.45	6.01	6.62	7.16	8.77	0.76	1.32	1.93	2.46	4.08
	6H	5.87	6.38	7.05	7.53	9.16	1.07	1.58	2.25	2.73	4.36
	8H	5.99	6.48	7.17	7.65	9.26	1.16	1.65	2.34	2.81	4.43
	12H	6.05	6.51	7.23	7.67	9.31	1.20	1.66	2.38	2.82	4.46
4H	2H	3.17	3.73	4.35	4.88	6.50	0.00	0.27	0.89	1.42	3.04
	3H	4.99	5.46	6.18	6.63	8.26	1.05	1.52	2.23	2.69	4.32
	4H	5.68	6.11	6.87	7.27	8.92	1.59	2.02	2.78	3.18	4.83
	6H	6.19	6.56	7.38	7.74	9.38	2.01	2.37	3.19	3.55	5.19
	8H	6.37	6.71	7.56	7.89	9.54	2.13	2.47	3.32	3.65	5.30
	12H	6.46	6.77	7.66	7.95	9.61	2.19	2.50	3.39	3.68	5.34
8H	4H	5.64	5.98	6.83	7.15	8.81	1.86	2.21	3.05	3.38	5.03
	6H	6.20	6.49	7.41	7.70	9.35	2.38	2.66	3.58	3.88	5.53
	8H	6.42	6.67	7.63	7.86	9.53	2.57	2.82	3.78	4.01	5.68
	12H	6.56	6.77	7.77	7.97	9.67	2.68	2.90	3.90	4.09	5.79
12H	4H	5.58	5.89	6.78	7.08	8.74	1.86	2.17	3.06	3.36	5.01
	6H	6.18	6.42	7.39	7.62	9.29	2.43	2.67	3.64	3.87	5.54
	8H	6.40	6.61	7.61	7.80	9.50	2.63	2.85	3.85	4.04	5.74

END OF REPORT