

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: P907854

Luminaire Tested: DFN2DIP-4P4F0-080D040US840-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P907854
REPORT IS A COMBINATION OF REPORTS P899101 AND P895967
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P4F0-080D040US840-FLLFLL
Description: 4 foot, 90deg - 4way Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

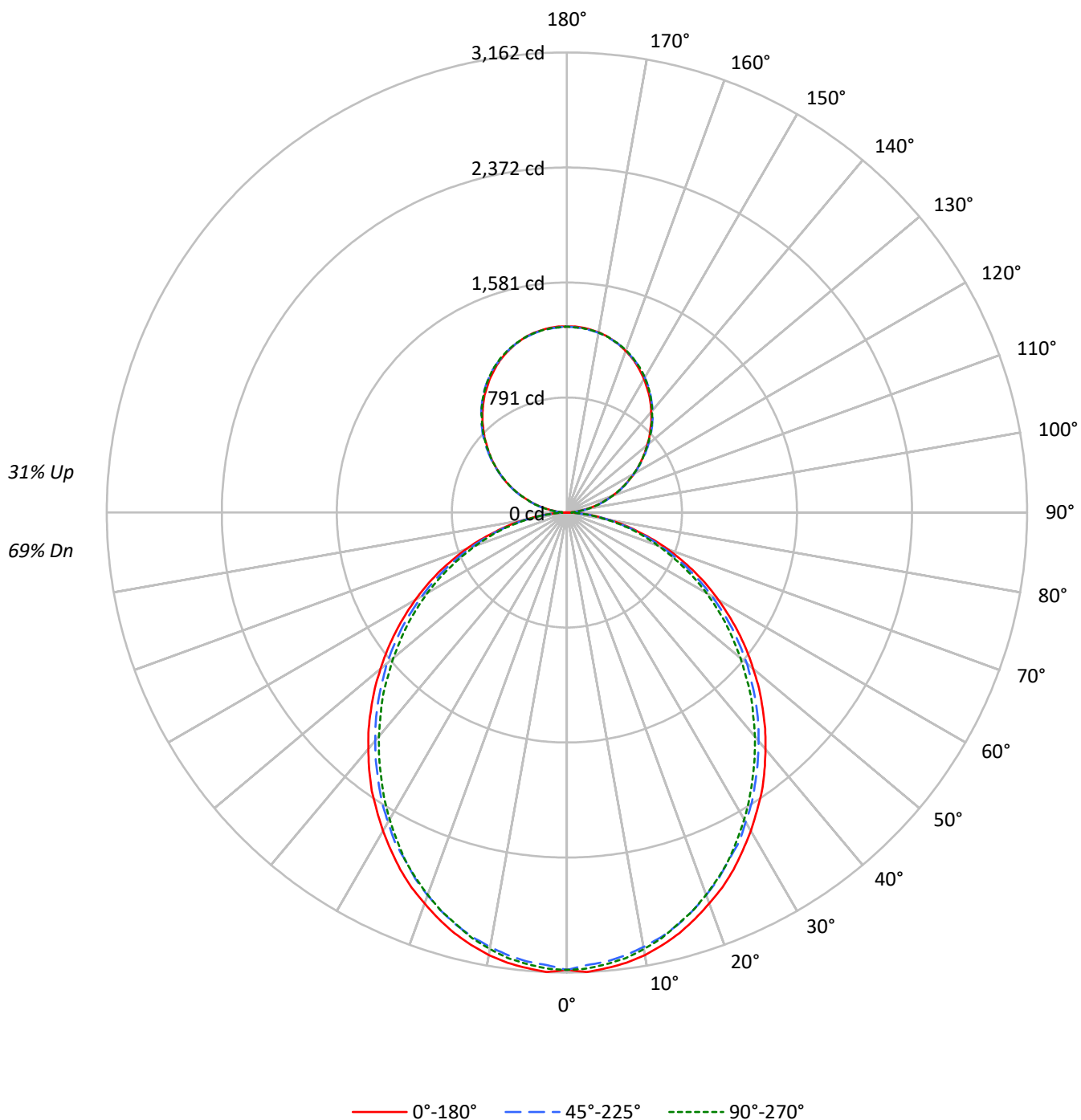
Lumens per Lamp: N/A
Luminaire Lumens: 11573.1 lumens
Efficiency: N/A
Efficacy: 99.3 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 4.07' x L: 4.07' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 116.6
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9971
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	112	112	112	112	106	106	106	106	94	94	94	83	83	83	74	74	74
1	102	98	94	90	96	92	89	86	83	80	77	74	71	70	65	64	62
2	93	85	79	74	88	81	75	70	72	68	64	65	61	58	57	55	52
3	85	75	67	61	80	71	64	59	64	58	54	57	53	49	51	48	45
4	78	67	58	52	73	63	56	50	57	51	46	51	46	42	46	42	39
5	71	59	51	45	67	56	49	43	51	45	40	46	41	37	41	37	34
6	66	53	45	39	62	51	43	38	46	40	35	41	36	32	37	33	30
7	61	48	40	34	58	46	39	33	42	35	31	38	33	29	34	30	26
8	57	44	36	31	54	42	35	30	38	32	28	35	29	26	31	27	24
9	53	40	33	27	50	39	31	26	35	29	25	32	27	23	29	25	21
10	50	37	30	25	47	36	29	24	32	27	22	30	25	21	27	23	20

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2039	2039	2039
5°	2043	2012	2025
10°	2026	1985	1999
15°	1997	1953	1956
20°	1957	1908	1913
25°	1917	1855	1863
30°	1867	1805	1800
35°	1819	1746	1732
40°	1761	1686	1668
45°	1703	1627	1603
50°	1639	1564	1526
55°	1572	1492	1457
60°	1497	1406	1377
65°	1415	1317	1283
70°	1311	1209	1182
75°	1166	1080	1090
80°	992	915	912
85°	720	629	615

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
Vertical Angle: 45°
Luminance: 1703 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	295.9	2.6
10°-20°	832.5	7.2
20°-30°	1223.4	10.6
30°-40°	1420.9	12.3
40°-50°	1419.1	12.3
50°-60°	1237.5	10.7
60°-70°	914.7	7.9
70°-80°	517.6	4.5
80°-90°	140.2	1.2
90°-100°	79.1	0.7
100°-110°	251.2	2.2
110°-120°	429.8	3.7
120°-130°	565.3	4.9
130°-140°	634.5	5.5
140°-150°	622.2	5.4
150°-160°	522.0	4.5
160°-170°	346.2	3.0
170°-180°	121.0	1.0
0°-30°	2351.8	20.3
0°-40°	3772.7	32.6
0°-60°	6429.3	55.6
0°-90°	8001.8	69.1
90°-120°	760.1	6.6
90°-150°	2582.2	22.3
90°-180°	3571.0	30.9
0°-180°	11573.1	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3144	3144	3144	3144	3144	
5°	3144	3132	3098	3122	3117	298
15°	2992	2975	2935	2947	2932	843
25°	2708	2684	2633	2639	2633	1246
35°	2337	2306	2258	2240	2225	1459
45°	1902	1880	1835	1802	1790	1467
55°	1439	1421	1384	1348	1333	1287
65°	970	952	922	895	880	959
75°	508	502	487	469	475	542
85°	124	121	118	109	106	138
90°	1	14	38	35	37	11
95°	56	67	69	69	67	63
105°	232	235	237	239	239	245
115°	431	438	436	434	431	427
125°	627	637	634	630	629	561
135°	812	823	826	825	822	627
145°	985	993	999	1000	996	616
155°	1126	1130	1133	1138	1135	519
165°	1226	1224	1224	1232	1227	346
175°	1275	1272	1270	1278	1271	121
180°	1278	1278	1278	1278	1278	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3143.5	3143.5	3143.5	3143.5	3143.5
2.5°	3161.8	3146.7	3113.4	3143.5	3137.8
5°	3143.5	3131.7	3098.4	3122.4	3116.6
7.5°	3122.4	3104.4	3071.1	3095.4	3089.4
10°	3089.4	3068.2	3031.9	3056.0	3047.1
12.5°	3043.8	3025.9	2989.6	3004.7	2998.6
15°	2992.5	2974.6	2935.1	2947.3	2932.2
17.5°	2929.0	2911.0	2871.6	2886.7	2871.6
20°	2859.4	2841.5	2799.1	2808.1	2796.2
22.5°	2790.2	2762.9	2723.4	2723.4	2717.3
25°	2708.4	2684.3	2633.0	2638.8	2633.0
27.5°	2617.6	2596.5	2557.3	2548.3	2533.2
30°	2527.2	2502.7	2457.6	2448.6	2436.4
32.5°	2430.3	2412.4	2363.9	2345.6	2333.5
35°	2336.6	2306.5	2258.1	2239.8	2224.7
37.5°	2230.8	2203.5	2155.2	2133.9	2118.9
40°	2122.1	2097.7	2049.3	2022.4	2010.1
42.5°	2016.3	1991.9	1943.8	1913.3	1895.4
45°	1901.5	1880.3	1834.7	1801.7	1789.6
47.5°	1789.6	1768.4	1719.9	1686.6	1668.6
50°	1671.5	1656.5	1614.1	1571.8	1556.7
52.5°	1556.7	1535.5	1496.4	1463.1	1441.9
55°	1439.0	1420.7	1384.5	1348.3	1333.1
57.5°	1321.0	1306.0	1266.5	1230.2	1218.0
60°	1203.0	1191.1	1148.7	1115.4	1106.4
62.5°	1088.1	1067.0	1036.8	1006.7	994.5
65°	970.5	952.2	922.0	894.7	879.7
67.5°	849.5	834.1	807.2	786.1	773.9
70°	737.6	725.4	698.2	677.0	665.1
72.5°	622.8	610.7	595.5	574.4	565.4
75°	507.7	501.9	486.6	468.6	474.6
77.5°	405.1	392.8	386.8	377.8	368.8
80°	302.5	299.2	293.2	284.2	278.0
82.5°	205.6	205.6	202.7	190.5	190.5
85°	123.8	120.9	118.1	108.8	105.8
87.5°	54.5	48.5	42.3	33.3	30.2
90°	1.1	13.8	37.8	35.4	36.6
92.5°	23.8	32.3	33.5	34.6	34.6
95°	56.2	67.1	69.0	69.0	67.1
97.5°	93.6	103.6	107.9	107.9	107.9
100°	136.7	145.6	148.7	148.7	147.5
102.5°	182.2	188.7	193.0	194.1	193.0
105°	231.9	234.9	237.2	239.1	239.1
107.5°	281.1	285.8	285.8	286.5	281.1
110°	328.9	335.1	335.1	335.1	332.0

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	380.5	387.1	385.9	382.8	380.5
115°	431.3	437.6	435.6	434.4	431.3
117.5°	481.8	490.3	484.9	481.8	478.8
120°	532.7	541.1	532.7	532.7	529.2
122.5°	578.9	589.7	584.3	581.2	578.9
125°	627.4	637.0	634.0	630.5	629.3
127.5°	674.8	686.7	682.5	677.8	674.8
130°	719.0	733.0	731.0	728.7	724.5
132.5°	768.7	779.5	780.3	774.9	771.8
135°	811.5	823.4	825.8	824.6	821.5
137.5°	859.3	868.9	870.8	870.0	865.5
140°	901.2	910.9	916.3	916.3	912.0
142.5°	944.4	954.0	957.0	958.3	954.0
145°	985.2	992.9	999.1	1000.3	996.0
147.5°	1021.8	1031.4	1036.0	1037.9	1033.7
150°	1059.6	1066.1	1070.4	1073.8	1070.4
152.5°	1093.1	1099.5	1105.0	1109.2	1105.0
155°	1126.5	1129.6	1133.1	1138.5	1135.0
157.5°	1155.5	1157.7	1159.6	1167.4	1162.0
160°	1181.2	1183.6	1184.7	1191.2	1186.6
162.5°	1205.1	1205.1	1206.3	1213.6	1208.2
165°	1225.6	1224.4	1224.4	1232.0	1226.7
167.5°	1244.1	1240.5	1240.5	1248.3	1242.8
170°	1257.9	1254.8	1253.6	1261.3	1254.8
172.5°	1267.5	1264.5	1263.2	1271.0	1264.5
175°	1275.3	1272.1	1269.8	1277.5	1271.0
177.5°	1279.5	1276.4	1274.0	1280.6	1274.0
180°	1277.5	1277.5	1277.5	1277.5	1277.5

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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	11.37	12.43	12.14	13.23	14.20	10.93	11.99	11.70	12.79	13.75
	3H	13.05	14.01	13.84	14.81	15.81	12.56	13.52	13.35	14.32	15.32
	4H	13.65	14.55	14.46	15.37	16.38	13.16	14.06	13.96	14.87	15.88
	6H	14.07	14.90	14.88	15.72	16.74	13.57	14.40	14.38	15.22	16.24
	8H	14.18	14.97	15.00	15.81	16.84	13.68	14.47	14.50	15.31	16.34
	12H	14.24	14.99	15.07	15.83	16.88	13.73	14.48	14.56	15.32	16.37
4H	2H	11.86	12.76	12.66	13.57	14.58	11.50	12.40	12.31	13.22	14.23
	3H	13.75	14.50	14.57	15.35	16.37	13.34	14.09	14.16	14.94	15.97
	4H	14.47	15.16	15.31	16.01	17.06	14.05	14.74	14.88	15.58	16.64
	6H	15.01	15.60	15.86	16.47	17.53	14.57	15.17	15.42	16.04	17.10
	8H	15.16	15.72	16.02	16.58	17.65	14.72	15.28	15.58	16.15	17.22
	12H	15.25	15.75	16.12	16.63	17.71	14.80	15.30	15.67	16.18	17.26
8H	4H	14.69	15.24	15.54	16.11	17.18	14.31	14.87	15.16	15.73	16.80
	6H	15.33	15.79	16.21	16.70	17.77	14.95	15.41	15.83	16.32	17.39
	8H	15.56	15.97	16.45	16.87	17.96	15.17	15.58	16.06	16.48	17.57
	12H	15.70	16.06	16.60	16.96	18.10	15.29	15.65	16.19	16.55	17.69
12H	4H	14.68	15.18	15.56	16.07	17.14	14.31	14.81	15.19	15.70	16.78
	6H	15.37	15.77	16.26	16.68	17.76	14.99	15.40	15.89	16.30	17.39
	8H	15.62	15.98	16.52	16.87	18.02	15.24	15.60	16.14	16.49	17.64