

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: P905075

Luminaire Tested: DFN2DIP-4P4F0-060D030US835-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P905075
REPORT IS A COMBINATION OF REPORTS P900605 AND P897523
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P4F0-060D030US835-FLLONL
Description: 4 foot, 90deg - 4way Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

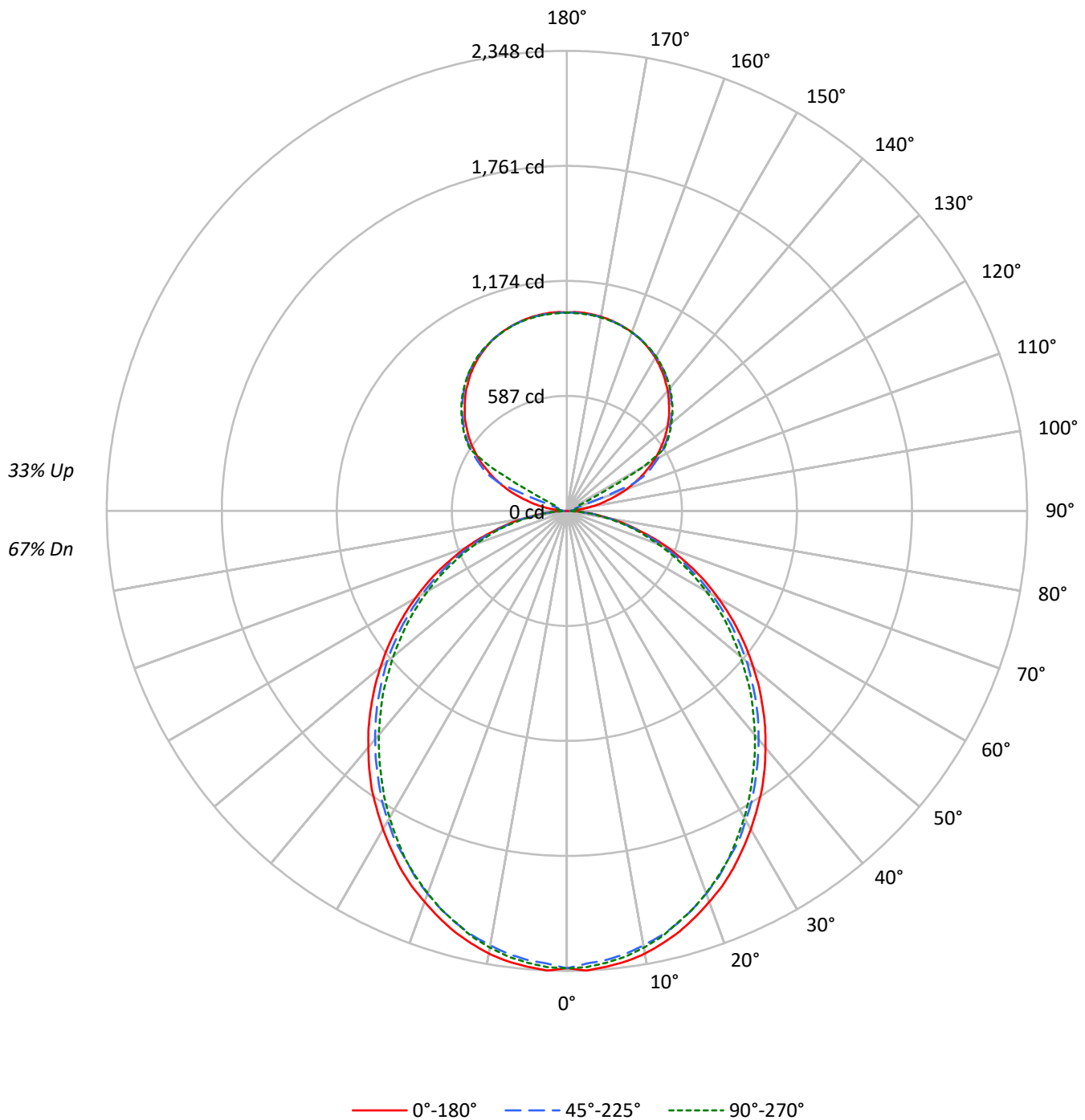
Lumens per Lamp: N/A
Luminaire Lumens: 8910.0 lumens
Efficiency: N/A
Efficacy: 105.4 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 4.07' x L: 4.07' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 84.5
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9933
Total Harmonic Distortion (THDi): 0.066
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			0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10
RCR																				
0	111	111	111	111	105	105	105	105	93	93	93	82	82	82	71	71	71	67	67	67
1	102	97	93	90	95	92	88	85	81	79	76	72	70	68	63	62	60	56	56	56
2	92	85	79	73	87	80	75	70	71	67	63	63	60	57	56	53	51	47	47	47
3	84	75	67	61	79	71	64	58	63	58	53	56	52	48	49	46	43	40	40	40
4	77	66	58	52	72	63	55	50	56	50	45	50	45	41	44	40	37	34	34	34
5	71	59	51	44	67	56	48	43	50	44	39	45	40	36	40	36	33	30	30	30
6	66	53	45	39	62	50	43	37	45	39	34	41	35	32	36	32	29	26	26	26
7	61	48	40	34	57	46	38	33	41	35	30	37	32	28	33	29	26	23	23	23
8	56	44	36	30	53	42	34	29	38	31	27	34	29	25	30	26	23	21	21	21
9	53	40	32	27	50	38	31	26	35	29	24	31	26	23	28	24	21	19	19	19
10	49	37	29	24	46	35	28	24	32	26	22	29	24	20	26	22	19	17	17	17

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1515	1515	1515
5°	1517	1494	1504
10°	1505	1474	1484
15°	1483	1451	1453
20°	1453	1417	1421
25°	1423	1377	1384
30°	1386	1340	1336
35°	1351	1297	1286
40°	1308	1252	1239
45°	1265	1208	1190
50°	1217	1162	1134
55°	1168	1108	1082
60°	1112	1044	1023
65°	1051	978	953
70°	973	898	878
75°	866	802	809
80°	737	680	677
85°	534	467	457

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 1265 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	219.7	2.5
10°-20°	618.3	6.9
20°-30°	908.6	10.2
30°-40°	1055.3	11.8
40°-50°	1054.0	11.8
50°-60°	919.0	10.3
60°-70°	679.4	7.6
70°-80°	384.4	4.3
80°-90°	103.2	1.2
90°-100°	33.4	0.4
100°-110°	124.4	1.4
110°-120°	330.1	3.7
120°-130°	547.5	6.1
130°-140°	581.5	6.5
140°-150°	540.5	6.1
150°-160°	434.5	4.9
160°-170°	280.0	3.1
170°-180°	96.4	1.1
0°-30°	1746.6	19.6
0°-40°	2801.8	31.4
0°-60°	4774.8	53.6
0°-90°	5941.8	66.7
90°-120°	487.9	5.5
90°-150°	2157.3	24.2
90°-180°	2968.0	33.3
0°-180°	8910.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2335	2335	2335	2335	2335	
5°	2335	2326	2301	2319	2315	222
15°	2222	2209	2180	2189	2178	626
25°	2011	1994	1955	1960	1955	926
35°	1735	1713	1677	1663	1652	1084
45°	1412	1396	1363	1338	1329	1090
55°	1069	1055	1028	1001	990	955
65°	721	707	685	664	653	713
75°	377	373	361	348	352	402
85°	92	90	88	81	79	103
90°	1	9	15	18	20	8
95°	48	23	28	32	32	56
105°	223	245	45	53	56	238
115°	421	434	452	113	60	415
125°	596	605	619	624	626	531
135°	737	749	755	763	761	569
145°	855	854	867	872	868	535
155°	941	935	944	948	942	434
165°	992	988	990	995	990	280
175°	1015	1010	1011	1016	1009	97
180°	1012	1012	1012	1012	1012	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2334.6	2334.6	2334.6	2334.6	2334.6
2.5°	2348.2	2337.0	2312.2	2334.6	2330.3
5°	2334.6	2325.8	2301.0	2318.9	2314.6
7.5°	2318.9	2305.6	2280.8	2298.9	2294.4
10°	2294.4	2278.7	2251.7	2269.6	2262.9
12.5°	2260.6	2247.2	2220.3	2231.5	2227.0
15°	2222.4	2209.1	2179.8	2188.9	2177.7
17.5°	2175.3	2162.0	2132.7	2143.8	2132.7
20°	2123.6	2110.3	2078.8	2085.5	2076.7
22.5°	2072.2	2051.9	2022.6	2022.6	2018.1
25°	2011.4	1993.6	1955.4	1959.7	1955.4
27.5°	1944.0	1928.3	1899.2	1892.6	1881.4
30°	1876.9	1858.7	1825.2	1818.5	1809.4
32.5°	1804.9	1791.6	1755.6	1742.0	1733.0
35°	1735.4	1713.0	1677.0	1663.4	1652.2
37.5°	1656.8	1636.5	1600.6	1584.8	1573.6
40°	1576.0	1557.9	1522.0	1502.0	1492.9
42.5°	1497.4	1479.3	1443.6	1421.0	1407.6
45°	1412.2	1396.4	1362.6	1338.1	1329.0
47.5°	1329.0	1313.3	1277.4	1252.6	1239.2
50°	1241.4	1230.2	1198.8	1167.3	1156.1
52.5°	1156.1	1140.4	1111.3	1086.6	1070.9
55°	1068.7	1055.1	1028.2	1001.3	990.1
57.5°	981.1	969.9	940.6	913.7	904.6
60°	893.4	884.6	853.2	828.4	821.7
62.5°	808.1	792.4	770.0	747.6	738.6
65°	720.7	707.2	684.8	664.5	653.3
67.5°	630.9	619.5	599.5	583.8	574.7
70°	547.8	538.8	518.5	502.8	494.0
72.5°	462.5	453.5	442.3	426.6	419.9
75°	377.0	372.8	361.3	348.0	352.5
77.5°	300.8	291.8	287.2	280.6	273.9
80°	224.6	222.2	217.7	211.0	206.5
82.5°	152.7	152.7	150.5	141.5	141.5
85°	91.9	89.8	87.6	80.7	78.6
87.5°	40.5	36.0	31.4	24.8	22.4
90°	0.7	8.8	14.6	18.4	19.7
92.5°	18.4	15.4	17.6	19.1	19.7
95°	47.6	23.4	28.5	32.3	31.5
97.5°	85.7	25.7	37.3	39.6	40.3
100°	129.7	29.3	41.8	47.6	49.1
102.5°	178.0	176.6	43.2	51.2	53.5
105°	222.7	244.7	44.7	52.7	55.7
107.5°	274.7	293.0	46.2	54.2	57.2
110°	324.6	339.9	128.2	55.0	57.9

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	371.5	384.6	372.2	56.4	58.6
115°	421.2	433.7	452.0	112.8	60.1
117.5°	464.5	479.1	491.6	386.8	194.9
120°	512.8	523.8	537.0	545.8	446.9
122.5°	553.8	565.6	580.3	584.6	585.4
125°	595.6	605.1	619.1	624.2	626.4
127.5°	633.7	643.9	655.0	662.3	663.0
130°	669.6	681.4	689.4	697.4	696.8
132.5°	706.2	715.8	723.8	730.4	729.7
135°	737.0	748.8	755.3	762.7	761.2
137.5°	769.2	778.0	785.4	792.7	790.5
140°	800.7	806.6	814.6	821.2	817.6
142.5°	827.2	832.3	841.8	847.6	844.0
145°	855.0	854.2	866.7	871.8	868.1
147.5°	879.1	876.9	889.4	893.0	890.1
150°	902.6	897.5	909.2	913.5	909.9
152.5°	922.3	916.5	927.5	931.9	926.8
155°	941.4	934.9	943.6	948.0	942.2
157.5°	956.8	951.0	957.6	962.7	956.8
160°	970.0	965.6	970.0	974.4	969.2
162.5°	981.7	977.3	981.0	986.1	979.5
165°	991.9	987.6	989.8	994.9	989.8
167.5°	1000.0	995.6	997.8	1003.0	996.4
170°	1006.6	1002.2	1003.7	1008.8	1002.2
172.5°	1011.0	1006.6	1008.1	1013.2	1006.6
175°	1014.6	1009.5	1011.0	1016.1	1008.8
177.5°	1016.1	1011.0	1011.8	1016.9	1010.3
180°	1012.5	1012.5	1012.5	1012.5	1012.5

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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	10.15	11.18	10.95	12.00	13.01	9.70	10.74	10.50	11.56	12.57
	3H	11.83	12.75	12.64	13.59	14.63	11.33	12.26	12.15	13.10	14.14
	4H	12.42	13.30	13.25	14.14	15.19	11.93	12.81	12.76	13.65	14.70
	6H	12.84	13.65	13.68	14.49	15.56	12.34	13.15	13.18	13.99	15.06
	8H	12.95	13.72	13.80	14.59	15.65	12.45	13.22	13.30	14.08	15.15
	12H	13.01	13.74	13.86	14.60	15.69	12.50	13.23	13.35	14.09	15.18
4H	2H	10.63	11.51	11.46	12.35	13.40	10.27	11.15	11.11	11.99	13.04
	3H	12.52	13.25	13.36	14.12	15.19	12.11	12.84	12.95	13.71	14.78
	4H	13.24	13.91	14.10	14.78	15.87	12.82	13.49	13.68	14.36	15.45
	6H	13.77	14.35	14.65	15.24	16.34	13.34	13.92	14.21	14.81	15.91
	8H	13.93	14.47	14.81	15.36	16.47	13.49	14.03	14.37	14.92	16.03
	12H	14.01	14.50	14.91	15.41	16.52	13.56	14.05	14.46	14.96	16.07
8H	4H	13.45	13.99	14.33	14.88	15.99	13.08	13.62	13.95	14.51	15.62
	6H	14.10	14.55	15.00	15.48	16.59	13.72	14.16	14.62	15.09	16.20
	8H	14.33	14.72	15.24	15.65	16.77	13.93	14.33	14.85	15.25	16.38
	12H	14.47	14.82	15.39	15.73	16.91	14.06	14.41	14.98	15.32	16.50
12H	4H	13.45	13.93	14.35	14.84	15.96	13.08	13.57	13.98	14.47	15.59
	6H	14.13	14.53	15.05	15.45	16.58	13.76	14.16	14.67	15.08	16.21
	8H	14.39	14.73	15.30	15.65	16.83	14.01	14.35	14.92	15.27	16.45