

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: P910580

Luminaire Tested: DFN2DIP-4P4F0-080D030US850-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P910580
REPORT IS A COMBINATION OF REPORTS P899090 AND P895967
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P4F0-080D030US850-RLLFLL
Description: 4 foot, 90deg - 4way Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

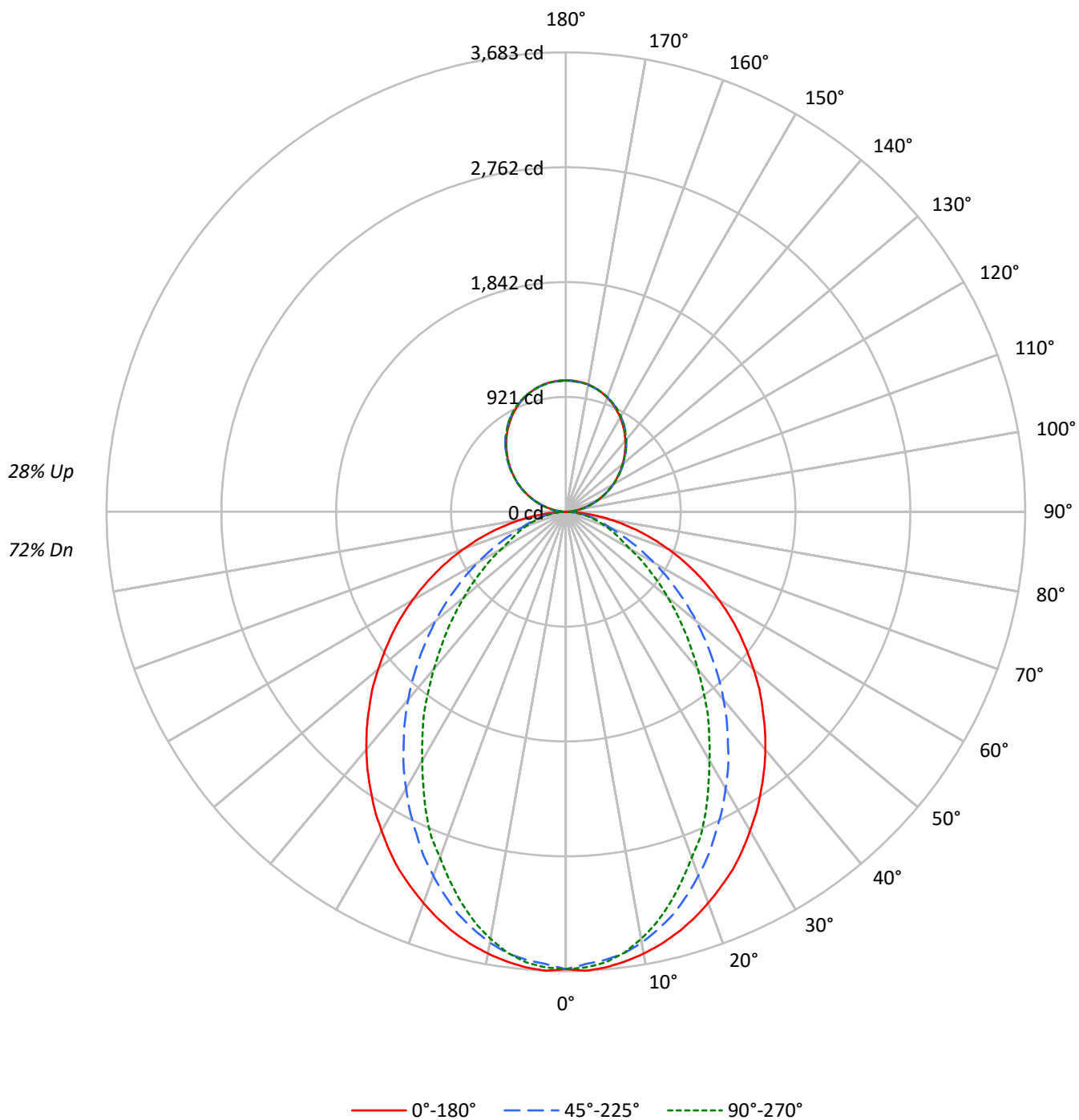
Lumens per Lamp: N/A
Luminaire Lumens: 10485.6 lumens
Efficiency: N/A
Efficacy: 96.4 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 4.07' x L: 4.07' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 108.8
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	96	96	96	85	85	85	76	76	76
1	103	99	95	92	98	94	91	88	85	82	80	76	75	73	69	67	66
2	95	87	81	76	90	83	78	73	75	71	67	68	65	62	61	59	57
3	87	78	70	65	82	74	67	62	67	62	58	61	57	53	55	52	49
4	80	69	61	55	76	66	59	53	60	54	50	55	50	46	50	46	43
5	74	62	54	48	70	59	52	47	54	48	44	49	45	41	45	41	38
6	68	56	48	42	65	54	46	41	49	43	39	45	40	36	41	37	34
7	63	51	43	38	60	49	42	36	45	39	34	41	36	32	38	33	30
8	59	47	39	34	56	45	38	33	41	35	31	38	33	29	35	31	27
9	55	43	35	30	52	41	34	30	38	32	28	35	30	26	32	28	25
10	52	40	32	28	49	38	31	27	35	29	25	33	28	24	30	26	23

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2379	2379	2379
5°	2383	2342	2357
10°	2359	2297	2281
15°	2327	2221	2163
20°	2284	2118	2018
25°	2240	2001	1879
30°	2182	1881	1701
35°	2124	1752	1545
40°	2065	1619	1366
45°	1997	1471	1203
50°	1926	1322	1045
55°	1853	1162	892
60°	1768	995	735
65°	1670	825	663
70°	1551	666	601
75°	1402	589	549
80°	1185	497	479
85°	829	336	366

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 1997 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	343.7	3.3
10°-20°	943.4	9.0
20°-30°	1324.5	12.6
30°-40°	1443.8	13.8
40°-50°	1327.0	12.7
50°-60°	1042.1	9.9
60°-70°	678.3	6.5
70°-80°	349.2	3.3
80°-90°	92.1	0.9
90°-100°	65.1	0.6
100°-110°	206.9	2.0
110°-120°	354.0	3.4
120°-130°	465.6	4.4
130°-140°	522.6	5.0
140°-150°	512.5	4.9
150°-160°	429.9	4.1
160°-170°	285.1	2.7
170°-180°	99.7	1.0
0°-30°	2611.6	24.9
0°-40°	4055.4	38.7
0°-60°	6424.5	61.3
0°-90°	7544.2	71.9
90°-120°	626.0	6.0
90°-150°	2126.7	20.3
90°-180°	2941.0	28.0
0°-180°	10485.6	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3667	3667	3667	3667	3667	
5°	3667	3650	3607	3637	3627	348
15°	3488	3451	3338	3275	3242	983
25°	3166	3060	2840	2705	2655	1456
35°	2728	2558	2267	2058	1984	1707
45°	2230	2008	1659	1423	1344	1722
55°	1696	1437	1078	879	816	1515
65°	1145	876	577	465	454	1135
75°	610	378	266	242	239	646
85°	143	73	63	63	63	164
90°	1	11	31	29	30	10
95°	46	55	57	57	55	52
105°	191	194	195	197	197	202
115°	355	360	359	358	355	351
125°	517	525	522	519	518	462
135°	668	678	680	679	677	517
145°	812	818	823	824	820	507
155°	928	930	933	938	935	427
165°	1009	1008	1008	1015	1010	285
175°	1050	1048	1046	1052	1047	100
180°	1052	1052	1052	1052	1052	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3666.8	3666.8	3666.8	3666.8	3666.8
2.5°	3683.3	3666.8	3630.2	3663.6	3656.9
5°	3666.8	3650.3	3606.9	3636.9	3627.0
7.5°	3636.9	3617.1	3570.6	3583.7	3567.1
10°	3597.0	3573.9	3507.7	3497.5	3477.7
12.5°	3547.5	3517.5	3427.7	3408.0	3371.4
15°	3487.6	3451.0	3338.3	3275.3	3242.2
17.5°	3417.8	3364.7	3225.3	3152.4	3099.2
20°	3338.3	3271.8	3106.0	3023.2	2949.9
22.5°	3252.0	3175.6	2983.1	2870.4	2820.7
25°	3165.8	3059.5	2840.5	2704.6	2654.6
27.5°	3062.9	2949.9	2707.7	2551.8	2475.4
30°	2953.5	2827.1	2561.7	2392.7	2302.8
32.5°	2847.1	2694.4	2422.6	2223.3	2140.3
35°	2727.8	2558.5	2266.6	2057.5	1984.2
37.5°	2611.6	2428.9	2120.5	1891.3	1808.6
40°	2488.8	2289.9	1967.7	1732.1	1645.9
42.5°	2362.7	2150.5	1815.2	1569.6	1486.7
45°	2230.0	2007.5	1659.3	1423.4	1343.9
47.5°	2104.0	1868.4	1510.0	1274.1	1201.3
50°	1964.5	1729.0	1364.0	1134.7	1065.3
52.5°	1828.3	1579.3	1224.4	1005.5	942.5
55°	1695.6	1436.8	1078.4	879.4	816.4
57.5°	1559.7	1294.2	949.2	763.3	710.1
60°	1420.2	1154.8	812.9	643.9	590.8
62.5°	1284.3	1018.8	696.8	537.6	511.2
65°	1144.9	875.9	577.3	464.8	454.5
67.5°	1012.2	743.3	464.8	408.0	398.2
70°	872.8	614.1	384.8	351.7	338.4
72.5°	740.0	494.3	321.8	295.4	288.7
75°	610.5	378.2	265.5	242.2	239.1
77.5°	481.3	268.6	209.2	195.7	189.1
80°	361.5	192.6	159.1	146.1	146.1
82.5°	252.1	129.5	109.5	102.8	102.8
85°	142.6	72.9	63.0	63.0	63.0
87.5°	53.1	26.4	26.4	23.3	23.3
90°	1.0	11.4	31.1	29.2	30.2
92.5°	19.6	26.6	27.6	28.5	28.5
95°	46.4	55.2	56.8	56.8	55.2
97.5°	77.1	85.3	88.8	88.8	88.8
100°	112.6	119.9	122.4	122.4	121.5
102.5°	150.0	155.5	158.9	159.9	158.9
105°	191.0	193.5	195.4	197.0	197.0
107.5°	231.6	235.3	235.3	236.0	231.6
110°	270.9	276.0	276.0	276.0	273.5



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	313.4	318.8	317.8	315.3	313.4
115°	355.3	360.3	358.8	357.9	355.3
117.5°	396.8	403.8	399.4	396.8	394.2
120°	438.7	445.7	438.7	438.7	435.8
122.5°	476.8	485.6	481.2	478.6	476.8
125°	516.8	524.7	522.1	519.2	518.3
127.5°	555.7	565.6	562.2	558.3	555.7
130°	592.2	603.6	602.1	600.2	596.6
132.5°	633.1	642.0	642.7	638.2	635.7
135°	668.4	678.2	680.1	679.2	676.6
137.5°	707.7	715.6	717.2	716.6	712.8
140°	742.3	750.2	754.7	754.7	751.1
142.5°	777.9	785.7	788.3	789.3	785.7
145°	811.5	817.8	822.9	823.8	820.3
147.5°	841.6	849.5	853.3	854.9	851.4
150°	872.7	878.1	881.5	884.4	881.5
152.5°	900.3	905.6	910.0	913.6	910.0
155°	927.9	930.3	933.2	937.7	934.9
157.5°	951.6	953.5	955.2	961.5	957.1
160°	972.9	974.8	975.8	981.1	977.4
162.5°	992.6	992.6	993.6	999.5	995.1
165°	1009.4	1008.4	1008.4	1014.7	1010.3
167.5°	1024.6	1021.7	1021.7	1028.0	1023.6
170°	1036.0	1033.5	1032.6	1038.9	1033.5
172.5°	1043.9	1041.5	1040.5	1046.8	1041.5
175°	1050.3	1047.8	1045.9	1052.2	1046.8
177.5°	1053.8	1051.2	1049.3	1054.8	1049.3
180°	1052.2	1052.2	1052.2	1052.2	1052.2

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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	12.02	13.07	12.77	13.83	14.76	7.98	9.03	8.73	9.80	10.72
	3H	13.72	14.66	14.48	15.43	16.39	9.19	10.13	9.95	10.90	11.85
	4H	14.34	15.23	15.12	16.01	16.98	9.65	10.53	10.43	11.32	12.28
	6H	14.78	15.59	15.57	16.39	17.37	9.98	10.80	10.78	11.59	12.57
	8H	14.91	15.69	15.72	16.50	17.48	10.08	10.85	10.88	11.67	12.65
	12H	14.99	15.72	15.79	16.53	17.54	10.13	10.87	10.94	11.68	12.68
4H	2H	12.06	12.95	12.85	13.73	14.70	8.61	9.49	9.39	10.27	11.24
	3H	13.92	14.65	14.72	15.47	16.45	9.98	10.71	10.77	11.53	12.51
	4H	14.62	15.29	15.44	16.11	17.12	10.54	11.20	11.35	12.02	13.03
	6H	15.16	15.73	15.99	16.58	17.59	10.97	11.54	11.80	12.39	13.40
	8H	15.34	15.88	16.17	16.72	17.74	11.10	11.64	11.93	12.48	13.51
	12H	15.45	15.93	16.30	16.79	17.82	11.18	11.66	12.03	12.52	13.55
8H	4H	14.61	15.15	15.44	15.98	17.01	10.83	11.37	11.67	12.21	13.24
	6H	15.19	15.63	16.05	16.51	17.54	11.36	11.81	12.22	12.69	13.72
	8H	15.41	15.80	16.28	16.68	17.73	11.56	11.95	12.43	12.83	13.87
	12H	15.56	15.91	16.44	16.78	17.88	11.69	12.03	12.56	12.90	14.00
12H	4H	14.57	15.05	15.42	15.91	16.95	10.85	11.33	11.70	12.19	13.23
	6H	15.16	15.56	16.04	16.44	17.48	11.41	11.81	12.29	12.69	13.73
	8H	15.40	15.75	16.27	16.61	17.71	11.64	11.98	12.51	12.85	13.95