

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: P910375

Luminaire Tested: DFN2DIP-4P3F0-020D060US850-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P910375
REPORT IS A COMBINATION OF REPORTS P900589 AND P897473
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P3F0-020D060US850-FLLONL
Description: 3 foot, 90deg - 4way Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

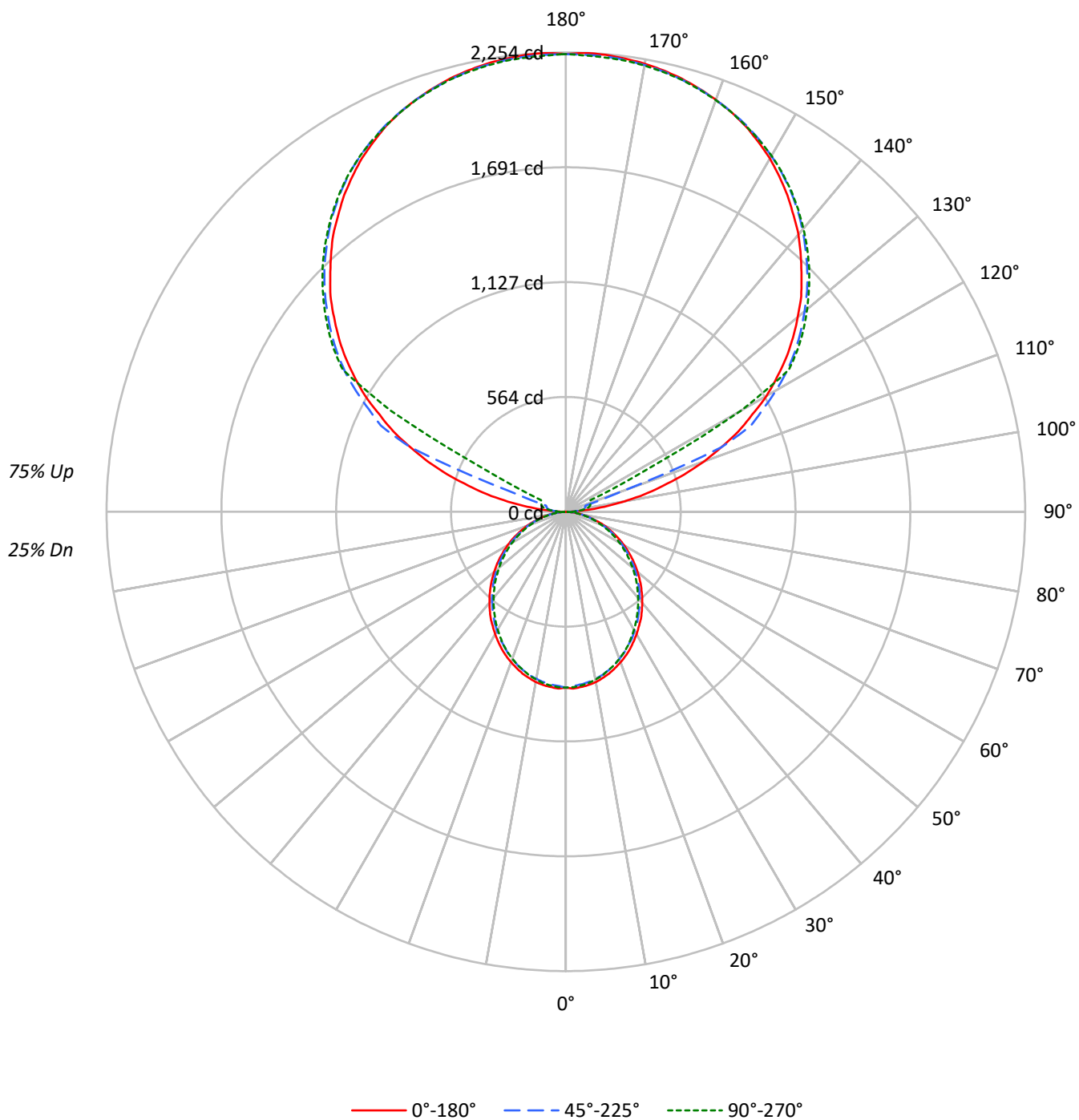
Lumens per Lamp: N/A
Luminaire Lumens: 8783.3 lumens
Efficiency: N/A
Efficacy: 139.9 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.07' x L: 3.07' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 62.8
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9951
Total Harmonic Distortion (THDi): 0.07
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	51	51	51	33	33	33
1	92	88	84	81	82	79	75	73	61	59	57	44	43	42	29	29	28
2	84	77	71	66	74	69	64	59	53	50	47	39	37	35	26	25	24
3	76	67	60	55	68	60	54	50	47	43	39	34	32	30	23	21	20
4	70	60	52	46	62	53	47	42	42	37	33	31	28	25	20	19	17
5	64	53	45	39	57	47	41	36	37	32	29	27	24	22	18	16	15
6	59	47	40	34	52	42	36	31	33	28	25	25	21	19	17	15	13
7	54	43	35	30	48	38	32	27	30	25	22	22	19	17	15	13	12
8	50	38	31	26	45	35	28	24	27	23	19	20	17	15	14	12	10
9	47	35	28	23	41	31	25	21	25	20	17	19	15	13	13	11	9
10	43	32	25	20	39	29	23	19	23	18	15	17	14	12	12	10	8

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	983	983	983
5°	984	969	976
10°	976	955	962
15°	961	939	942
20°	941	917	920
25°	921	890	895
30°	896	865	864
35°	873	835	831
40°	844	806	799
45°	815	776	767
50°	783	745	729
55°	750	709	695
60°	713	666	655
65°	671	621	609
70°	619	567	559
75°	547	502	512
80°	460	419	423
85°	323	278	277

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 1534 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	81.2	0.9
10°-20°	228.6	2.6
20°-30°	335.9	3.8
30°-40°	390.1	4.4
40°-50°	389.6	4.4
50°-60°	339.7	3.9
60°-70°	251.1	2.9
70°-80°	142.1	1.6
80°-90°	41.5	0.5
90°-100°	74.1	0.8
100°-110°	276.0	3.1
110°-120°	732.1	8.3
120°-130°	1214.2	13.8
130°-140°	1289.8	14.7
140°-150°	1198.7	13.6
150°-160°	963.8	11.0
160°-170°	621.0	7.1
170°-180°	213.7	2.4
0°-30°	645.7	7.4
0°-40°	1035.8	11.8
0°-60°	1765.1	20.1
0°-90°	2199.8	25.0
90°-120°	1082.2	12.3
90°-150°	4785.0	54.5
90°-180°	6583.0	74.9
0°-180°	8783.3	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	863	863	863	863	863	
5°	863	860	851	857	856	82
15°	822	817	806	809	805	231
25°	744	737	723	724	723	342
35°	642	633	620	615	611	401
45°	522	516	504	495	491	403
55°	395	390	380	370	366	353
65°	266	261	253	246	242	263
75°	139	138	134	129	130	149
85°	34	33	32	30	29	38
90°	2	20	32	41	44	8
95°	106	52	63	72	70	125
105°	494	543	99	117	124	528
115°	934	962	1003	250	133	920
125°	1321	1342	1373	1384	1389	1178
135°	1635	1661	1675	1692	1688	1263
145°	1896	1895	1922	1934	1926	1186
155°	2088	2074	2093	2103	2090	962
165°	2200	2190	2195	2207	2195	622
175°	2250	2239	2242	2254	2238	214
180°	2246	2246	2246	2246	2246	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	863.0	863.0	863.0	863.0	863.0
2.5°	868.0	863.9	854.7	863.0	861.5
5°	863.0	859.8	850.6	857.3	855.6
7.5°	857.3	852.3	843.2	849.8	848.2
10°	848.2	842.4	832.4	839.0	836.5
12.5°	835.6	830.8	820.8	824.9	823.2
15°	821.5	816.7	805.8	809.1	805.0
17.5°	804.1	799.3	788.4	792.5	788.4
20°	785.1	780.1	768.4	771.0	767.6
22.5°	766.0	758.6	747.7	747.7	746.0
25°	743.6	736.9	722.8	724.4	722.8
27.5°	718.6	712.9	702.1	699.7	695.5
30°	693.8	687.1	674.7	672.3	668.8
32.5°	667.2	662.3	649.0	644.0	640.7
35°	641.6	633.2	619.9	614.9	610.7
37.5°	612.5	605.0	591.7	585.9	581.7
40°	582.6	575.9	562.6	555.3	551.8
42.5°	553.5	546.8	533.7	525.3	520.3
45°	522.0	516.2	503.7	494.6	491.3
47.5°	491.3	485.5	472.2	463.0	458.1
50°	458.9	454.8	443.2	431.5	427.4
52.5°	427.4	421.5	410.8	401.7	395.9
55°	395.0	390.0	380.1	370.2	366.0
57.5°	362.6	358.5	347.7	337.8	334.4
60°	330.3	327.0	315.4	306.2	303.8
62.5°	298.8	292.9	284.7	276.4	273.0
65°	266.4	261.4	253.2	245.6	241.5
67.5°	233.2	229.0	221.6	215.8	212.5
70°	202.5	199.2	191.6	185.9	182.7
72.5°	171.0	167.7	163.5	157.7	155.3
75°	139.4	137.8	133.5	128.6	130.3
77.5°	111.2	107.9	106.1	103.7	101.3
80°	83.1	82.2	80.5	78.0	76.3
82.5°	56.4	56.4	55.7	52.3	52.3
85°	33.9	33.2	32.4	29.8	29.1
87.5°	15.0	13.3	11.6	9.2	8.3
90°	1.6	19.5	32.4	40.7	43.8
92.5°	40.7	34.2	38.9	42.3	43.8
95°	105.6	51.9	63.3	71.6	69.9
97.5°	190.1	56.9	82.7	87.8	89.4
100°	287.7	65.0	92.6	105.6	108.8
102.5°	394.8	391.7	95.9	113.7	118.7
105°	493.9	542.7	99.1	116.9	123.5
107.5°	609.4	649.9	102.5	120.2	126.8
110°	720.0	753.9	284.5	122.0	128.3

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	823.9	853.0	825.4	125.0	130.1
115°	934.3	961.9	1002.6	250.3	133.3
117.5°	1030.2	1062.6	1090.4	857.9	432.2
120°	1137.5	1161.8	1191.2	1210.6	991.2
122.5°	1228.3	1254.4	1287.0	1296.6	1298.4
125°	1321.0	1342.2	1373.1	1384.5	1389.2
127.5°	1405.5	1428.3	1452.8	1469.0	1470.5
130°	1485.2	1511.2	1529.0	1546.9	1545.4
132.5°	1566.5	1587.6	1605.4	1620.0	1618.5
135°	1634.8	1660.8	1675.3	1691.7	1688.3
137.5°	1706.1	1725.6	1742.0	1758.2	1753.4
140°	1776.0	1789.1	1806.9	1821.5	1813.4
142.5°	1834.6	1846.0	1867.1	1880.0	1871.9
145°	1896.4	1894.6	1922.2	1933.7	1925.6
147.5°	1949.8	1945.0	1972.6	1980.7	1974.4
150°	2002.0	1990.5	2016.6	2026.3	2018.2
152.5°	2045.8	2032.8	2057.1	2067.0	2055.5
155°	2088.0	2073.5	2093.0	2102.7	2089.7
157.5°	2122.2	2109.2	2123.8	2135.3	2122.2
160°	2151.5	2141.6	2151.5	2161.1	2149.8
162.5°	2177.3	2167.7	2175.7	2187.2	2172.5
165°	2200.1	2190.5	2195.3	2206.7	2195.3
167.5°	2218.0	2208.2	2213.2	2224.7	2209.9
170°	2232.7	2222.9	2226.2	2237.5	2222.9
172.5°	2242.4	2232.7	2236.0	2247.4	2232.7
175°	2250.5	2239.1	2242.4	2253.7	2237.5
177.5°	2253.7	2242.4	2244.1	2255.5	2240.8
180°	2245.6	2245.6	2245.6	2245.6	2245.6

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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	4.24	4.91	5.38	6.05	7.63	3.79	4.47	4.94	5.60	7.19
	3H	5.88	6.48	7.03	7.63	9.23	5.39	5.99	6.54	7.14	8.74
	4H	6.46	7.03	7.62	8.17	9.78	5.96	6.54	7.12	7.68	9.29
	6H	6.84	7.37	8.01	8.52	10.13	6.34	6.87	7.51	8.02	9.64
	8H	6.94	7.44	8.11	8.60	10.21	6.44	6.94	7.61	8.10	9.71
	12H	6.98	7.46	8.16	8.61	10.24	6.47	6.95	7.65	8.10	9.74
4H	2H	4.67	5.25	5.84	6.39	8.00	4.32	4.89	5.49	6.04	7.64
	3H	6.52	6.99	7.69	8.16	9.78	6.11	6.59	7.28	7.76	9.38
	4H	7.22	7.66	8.40	8.82	10.46	6.80	7.24	7.97	8.39	10.03
	6H	7.72	8.10	8.90	9.28	10.90	7.29	7.66	8.47	8.84	10.47
	8H	7.86	8.21	9.04	9.38	11.03	7.42	7.78	8.60	8.95	10.59
	12H	7.92	8.24	9.12	9.42	11.07	7.47	7.79	8.67	8.98	10.63
8H	4H	7.40	7.75	8.58	8.92	10.56	7.02	7.37	8.20	8.54	10.19
	6H	8.01	8.30	9.21	9.52	11.16	7.63	7.92	8.83	9.13	10.77
	8H	8.23	8.48	9.43	9.67	11.33	7.84	8.09	9.04	9.28	10.94
	12H	8.35	8.57	9.56	9.76	11.45	7.94	8.16	9.15	9.35	11.04
12H	4H	7.37	7.69	8.57	8.87	10.52	7.00	7.32	8.20	8.50	10.15
	6H	8.04	8.29	9.24	9.48	11.15	7.67	7.92	8.87	9.11	10.77
	8H	8.27	8.49	9.48	9.68	11.37	7.89	8.11	9.10	9.30	10.99