

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: P906730

Luminaire Tested: DFN2DIP-SQ4F0-070D140US835-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P906730
REPORT IS A COMBINATION OF REPORTS P900188 AND P896915
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-070D140US835-RLLFLL
Description: 4 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

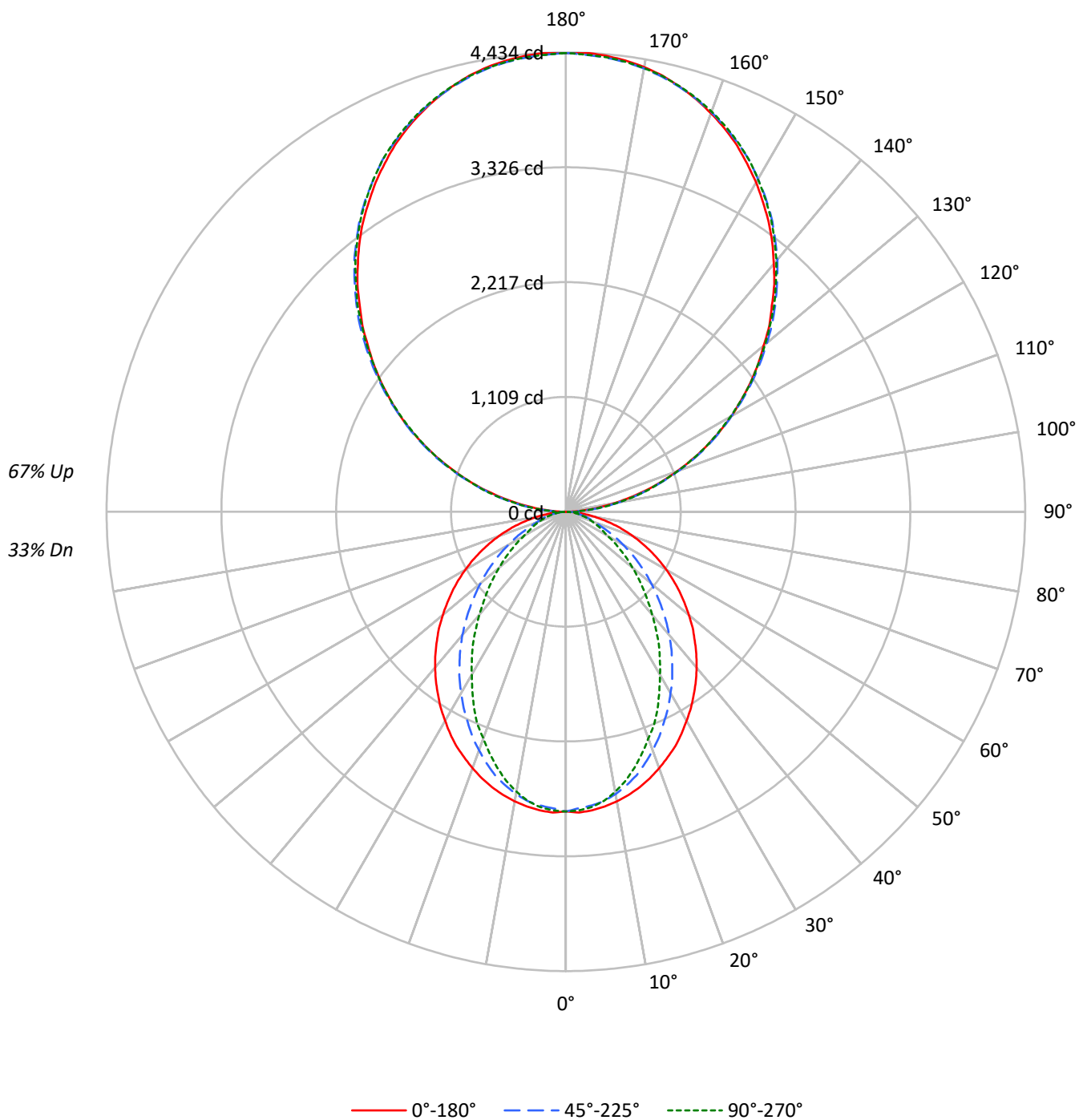
Lumens per Lamp: N/A
Luminaire Lumens: 18340.0 lumens
Efficiency: N/A
Efficacy: 109.8 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 167.1
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9967
Total Harmonic Distortion (THDi): 0.063
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	103	103	103	103	93	93	93	93	74	74	74	56	56	56	40	40	40
1	94	90	86	83	85	81	78	75	65	63	61	50	48	47	36	35	34
2	86	79	73	68	77	71	67	62	57	54	51	44	42	40	32	31	29
3	79	70	63	57	71	63	57	52	51	46	43	39	36	34	29	27	25
4	72	62	54	49	65	56	50	45	45	41	37	35	32	29	26	24	22
5	66	55	47	42	59	50	43	38	40	36	32	32	28	26	23	21	19
6	61	49	42	36	55	45	38	33	36	32	28	29	25	23	21	19	17
7	56	45	37	32	51	41	34	29	33	28	25	26	23	20	19	17	15
8	52	40	33	28	47	37	30	26	30	25	22	24	20	18	18	16	14
9	49	37	30	25	44	34	27	23	28	23	20	22	19	16	17	14	13
10	45	34	27	22	41	31	25	21	25	21	18	20	17	15	15	13	11

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2030	2030	2030
5°	2033	1998	2011
10°	2013	1959	1946
15°	1985	1895	1846
20°	1949	1806	1722
25°	1911	1706	1603
30°	1861	1604	1451
35°	1811	1494	1318
40°	1761	1380	1165
45°	1703	1254	1026
50°	1642	1126	891
55°	1579	990	760
60°	1506	847	626
65°	1422	702	564
70°	1320	567	512
75°	1192	500	467
80°	1007	421	407
85°	701	283	310

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 3485 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	271.1	1.5
10°-20°	744.3	4.1
20°-30°	1045.0	5.7
30°-40°	1139.2	6.2
40°-50°	1047.0	5.7
50°-60°	822.3	4.5
60°-70°	535.2	2.9
70°-80°	275.5	1.5
80°-90°	82.9	0.5
90°-100°	274.0	1.5
100°-110°	870.6	4.7
110°-120°	1489.8	8.1
120°-130°	1959.3	10.7
130°-140°	2199.2	12.0
140°-150°	2156.6	11.8
150°-160°	1809.1	9.9
160°-170°	1199.7	6.5
170°-180°	419.3	2.3
0°-30°	2060.5	11.2
0°-40°	3199.7	17.4
0°-60°	5068.9	27.6
0°-90°	5962.5	32.5
90°-120°	2634.3	14.4
90°-150°	8949.3	48.8
90°-180°	12377.0	67.5
0°-180°	18340.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2893	2893	2893	2893	2893	
5°	2893	2880	2846	2870	2862	274
15°	2752	2723	2634	2584	2558	775
25°	2498	2414	2241	2134	2094	1149
35°	2152	2019	1788	1623	1566	1347
45°	1760	1584	1309	1123	1060	1359
55°	1338	1134	851	694	644	1195
65°	903	691	456	367	359	896
75°	482	298	209	191	189	509
85°	112	58	50	50	50	129
90°	4	48	131	123	127	18
95°	195	232	239	239	232	217
105°	804	814	822	829	829	848
115°	1495	1516	1510	1506	1495	1479
125°	2174	2208	2197	2185	2181	1943
135°	2812	2854	2862	2858	2847	2174
145°	3414	3441	3463	3467	3452	2133
155°	3904	3915	3927	3946	3934	1797
165°	4248	4244	4244	4270	4252	1198
175°	4420	4409	4401	4428	4405	420
180°	4428	4428	4428	4428	4428	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2893.1	2893.1	2893.1	2893.1	2893.1
2.5°	2906.1	2893.1	2864.2	2890.6	2885.3
5°	2893.1	2880.0	2845.9	2869.5	2861.7
7.5°	2869.5	2853.9	2817.3	2827.5	2814.5
10°	2838.1	2819.8	2767.5	2759.5	2743.9
12.5°	2798.9	2775.3	2704.5	2688.9	2660.0
15°	2751.7	2722.8	2633.9	2584.2	2558.1
17.5°	2696.7	2654.8	2544.8	2487.2	2445.3
20°	2633.9	2581.4	2450.6	2385.3	2327.5
22.5°	2565.9	2505.6	2353.6	2264.7	2225.6
25°	2497.8	2413.9	2241.1	2133.9	2094.5
27.5°	2416.7	2327.5	2136.4	2013.4	1953.1
30°	2330.3	2230.6	2021.1	1887.8	1817.0
32.5°	2246.4	2125.9	1911.4	1754.2	1688.6
35°	2152.2	2018.6	1788.4	1623.4	1565.6
37.5°	2060.6	1916.4	1673.1	1492.2	1427.0
40°	1963.6	1806.7	1552.5	1366.7	1298.6
42.5°	1864.2	1696.7	1432.2	1238.3	1173.1
45°	1759.5	1583.9	1309.2	1123.1	1060.3
47.5°	1660.0	1474.2	1191.4	1005.3	947.8
50°	1550.0	1364.2	1076.1	895.3	840.6
52.5°	1442.5	1246.1	966.1	793.3	743.6
55°	1337.8	1133.6	850.8	693.9	644.2
57.5°	1230.6	1021.1	748.9	602.2	560.3
60°	1120.6	911.1	641.4	508.1	466.1
62.5°	1013.3	803.9	549.7	424.2	403.3
65°	903.3	691.1	455.6	366.7	358.6
67.5°	798.6	586.4	366.7	321.9	314.2
70°	688.6	484.4	303.6	277.5	266.9
72.5°	583.9	390.0	253.9	233.1	227.8
75°	481.7	298.3	209.4	191.1	188.6
77.5°	379.7	211.9	165.0	154.4	149.2
80°	285.3	151.9	125.6	115.3	115.3
82.5°	198.9	102.2	86.4	81.1	81.1
85°	112.5	57.5	49.7	49.7	49.7
87.5°	41.9	20.8	20.8	18.3	18.3
90°	4.0	48.1	130.8	122.8	126.8
92.5°	82.8	112.1	116.1	120.1	120.1
95°	194.9	232.3	238.9	238.9	232.3
97.5°	324.4	359.1	373.8	373.8	373.8
100°	473.9	504.6	515.2	515.2	511.2
102.5°	631.4	654.1	668.8	672.8	668.8
105°	803.6	814.3	822.3	828.9	828.9
107.5°	974.4	990.5	990.5	993.1	974.4
110°	1140.0	1161.3	1161.3	1161.3	1150.6

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1318.8	1341.5	1337.5	1326.8	1318.8
115°	1495.0	1516.4	1509.7	1505.7	1495.0
117.5°	1669.9	1699.3	1680.6	1669.9	1659.2
120°	1846.1	1875.5	1846.1	1846.1	1834.1
122.5°	2006.3	2043.6	2025.0	2014.3	2006.3
125°	2174.5	2207.8	2197.1	2185.1	2181.1
127.5°	2338.6	2380.0	2365.3	2349.3	2338.6
130°	2492.1	2540.2	2533.5	2525.5	2510.8
132.5°	2664.3	2701.7	2704.4	2685.7	2675.0
135°	2812.5	2853.9	2861.9	2857.9	2847.2
137.5°	2978.0	3011.4	3018.1	3015.4	2999.4
140°	3123.5	3156.9	3175.6	3175.6	3160.9
142.5°	3273.0	3306.4	3317.1	3321.1	3306.4
145°	3414.5	3441.2	3462.6	3466.6	3451.9
147.5°	3541.3	3574.7	3590.7	3597.4	3582.7
150°	3672.1	3694.8	3709.5	3721.5	3709.5
152.5°	3788.3	3811.0	3829.7	3844.3	3829.7
155°	3904.4	3915.1	3927.1	3945.8	3933.8
157.5°	4004.5	4012.5	4019.2	4045.9	4027.2
160°	4094.0	4102.0	4106.0	4128.7	4112.6
162.5°	4176.7	4176.7	4180.7	4206.1	4187.4
165°	4247.5	4243.5	4243.5	4270.2	4251.5
167.5°	4311.5	4299.5	4299.5	4326.2	4307.5
170°	4359.6	4348.9	4344.9	4371.6	4348.9
172.5°	4393.0	4382.3	4378.3	4405.0	4382.3
175°	4419.7	4409.0	4401.0	4427.7	4405.0
177.5°	4434.3	4423.7	4415.7	4438.3	4415.7
180°	4427.7	4427.7	4427.7	4427.7	4427.7

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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	7.72	8.42	8.82	9.52	11.02	3.68	4.38	4.78	5.48	6.98
	3H	9.39	10.02	10.50	11.12	12.64	4.86	5.49	5.97	6.59	8.11
	4H	10.00	10.59	11.11	11.70	13.22	5.30	5.90	6.42	7.00	8.53
	6H	10.42	10.97	11.54	12.07	13.61	5.62	6.17	6.75	7.27	8.81
	8H	10.54	11.06	11.67	12.18	13.71	5.71	6.23	6.84	7.35	8.88
	12H	10.60	11.10	11.73	12.21	13.76	5.75	6.24	6.88	7.36	8.91
4H	2H	7.72	8.32	8.85	9.42	10.95	4.26	4.86	5.39	5.96	7.49
	3H	9.54	10.04	10.67	11.17	12.71	5.60	6.10	6.73	7.23	8.77
	4H	10.23	10.69	11.37	11.81	13.37	6.14	6.60	7.28	7.72	9.28
	6H	10.75	11.14	11.89	12.28	13.83	6.56	6.95	7.70	8.09	9.64
	8H	10.92	11.29	12.06	12.42	13.99	6.68	7.05	7.82	8.18	9.75
	12H	11.01	11.34	12.17	12.49	14.06	6.74	7.08	7.90	8.22	9.79
8H	4H	10.19	10.56	11.33	11.69	13.26	6.42	6.78	7.56	7.92	9.48
	6H	10.76	11.06	11.92	12.24	13.80	6.93	7.23	8.09	8.41	9.97
	8H	10.98	11.24	12.14	12.40	13.98	7.12	7.39	8.29	8.54	10.12
	12H	11.11	11.35	12.28	12.50	14.11	7.24	7.47	8.41	8.62	10.24
12H	4H	10.14	10.47	11.30	11.61	13.19	6.42	6.75	7.57	7.89	9.46
	6H	10.73	11.00	11.90	12.15	13.73	6.98	7.25	8.15	8.40	9.98
	8H	10.95	11.18	12.12	12.33	13.95	7.19	7.42	8.36	8.57	10.19