

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: P906612

Luminaire Tested: DFN2DIP-SQ3F0-110D090US835-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P906612
REPORT IS A COMBINATION OF REPORTS P899965 AND P896733
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ3F0-110D090US835-FLLFLL
Description: 3 foot, Square Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

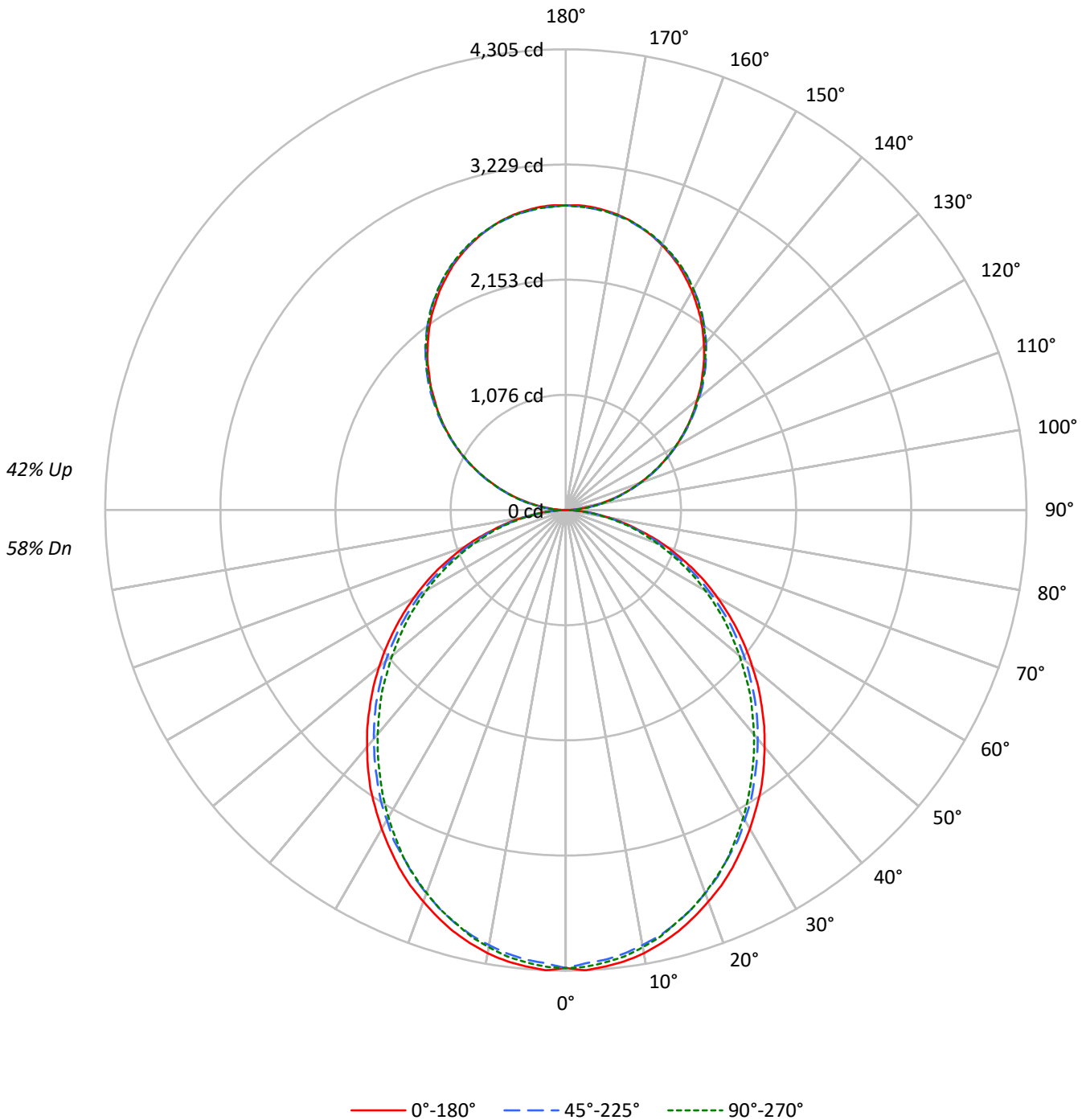
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 18855.0 lumens
Efficiency: N/A
Efficacy: 104.5 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.06' x L: 3.06' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 180.4
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9977
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			0	
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	0
RCR																					
0	109	109	109	109	102	102	102	102	88	88	88	75	75	75	63	63	63	58			58
1	100	95	91	88	93	89	85	82	77	74	72	66	64	62	56	55	53	49			49
2	91	83	77	72	84	78	72	68	67	63	60	58	55	52	49	47	45	41			41
3	83	73	66	60	77	68	62	56	59	54	50	51	47	44	44	41	38	35			35
4	76	65	57	51	70	61	53	48	53	47	43	46	41	38	39	36	33	30			30
5	70	58	49	43	65	54	47	41	47	42	37	41	36	33	35	32	29	26			26
6	64	52	44	38	60	49	41	36	43	37	32	37	32	29	32	28	25	23			23
7	59	47	39	33	55	44	37	32	39	33	29	34	29	26	29	25	23	20			20
8	55	43	35	29	51	40	33	28	35	30	25	31	26	23	27	23	20	18			18
9	51	39	31	26	48	37	30	25	32	27	23	29	24	21	25	21	18	16			16
10	48	36	28	24	45	34	27	23	30	24	21	26	22	19	23	19	17	15			15

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	4904	4904	4904
5°	4909	4833	4867
10°	4866	4764	4799
15°	4791	4683	4695
20°	4692	4570	4588
25°	4592	4437	4464
30°	4468	4312	4308
35°	4351	4166	4142
40°	4207	4018	3985
45°	4063	3869	3824
50°	3905	3713	3637
55°	3740	3533	3465
60°	3553	3319	3268
65°	3348	3097	3035
70°	3088	2826	2784
75°	2728	2502	2551
80°	2293	2087	2108
85°	1614	1383	1380

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 4063 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	402.8	2.1
10°-20°	1133.5	6.0
20°-30°	1665.7	8.8
30°-40°	1934.7	10.3
40°-50°	1932.3	10.2
50°-60°	1684.9	8.9
60°-70°	1245.5	6.6
70°-80°	704.7	3.7
80°-90°	194.1	1.0
90°-100°	176.1	0.9
100°-110°	559.6	3.0
110°-120°	957.7	5.1
120°-130°	1259.5	6.7
130°-140°	1413.8	7.5
140°-150°	1386.4	7.4
150°-160°	1163.0	6.2
160°-170°	771.2	4.1
170°-180°	269.6	1.4
0°-30°	3202.1	17.0
0°-40°	5136.7	27.2
0°-60°	8753.8	46.4
0°-90°	10898.1	57.8
90°-120°	1693.5	9.0
90°-150°	5753.1	30.5
90°-180°	7957.0	42.2
0°-180°	18855.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4280	4280	4280	4280	4280	
5°	4280	4264	4219	4251	4244	406
15°	4074	4050	3996	4013	3992	1148
25°	3688	3655	3585	3593	3585	1697
35°	3182	3140	3074	3050	3029	1987
45°	2589	2560	2498	2453	2437	1998
55°	1959	1934	1885	1836	1815	1752
65°	1321	1296	1255	1218	1198	1306
75°	691	683	662	638	646	738
85°	169	165	161	148	144	188
90°	3	31	84	79	82	18
95°	125	149	154	154	149	139
105°	517	523	529	533	533	545
115°	961	975	970	968	961	951
125°	1398	1419	1412	1405	1402	1249
135°	1808	1835	1840	1837	1830	1398
145°	2195	2212	2226	2228	2219	1372
155°	2510	2517	2525	2537	2529	1155
165°	2730	2728	2728	2745	2733	770
175°	2841	2834	2829	2846	2832	270
180°	2846	2846	2846	2846	2846	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	4280.2	4280.2	4280.2	4280.2	4280.2
2.5°	4305.0	4284.5	4239.1	4280.2	4272.3
5°	4280.2	4264.0	4218.6	4251.3	4243.5
7.5°	4251.3	4226.9	4181.5	4214.7	4206.4
10°	4206.4	4177.5	4128.2	4160.9	4148.7
12.5°	4144.4	4119.9	4070.6	4091.1	4082.8
15°	4074.5	4050.0	3996.3	4012.9	3992.4
17.5°	3988.0	3963.6	3909.9	3930.4	3909.9
20°	3893.3	3868.8	3811.2	3823.4	3807.3
22.5°	3799.0	3761.8	3708.1	3708.1	3699.8
25°	3687.6	3654.9	3585.0	3592.9	3585.0
27.5°	3564.0	3535.2	3481.9	3469.7	3449.2
30°	3440.9	3407.7	3346.1	3333.9	3317.3
32.5°	3309.0	3284.6	3218.6	3193.7	3177.1
35°	3181.5	3140.5	3074.5	3049.6	3029.1
37.5°	3037.4	3000.3	2934.4	2905.5	2885.0
40°	2889.4	2856.2	2790.3	2753.6	2737.0
42.5°	2745.3	2712.1	2646.6	2605.1	2580.7
45°	2589.0	2560.1	2498.1	2453.2	2436.6
47.5°	2436.6	2407.8	2341.8	2296.4	2271.9
50°	2275.9	2255.4	2197.7	2140.1	2119.6
52.5°	2119.6	2090.7	2037.5	1992.0	1963.2
55°	1959.3	1934.4	1885.1	1835.7	1815.2
57.5°	1798.6	1778.1	1724.4	1675.0	1658.4
60°	1637.9	1621.8	1564.1	1518.7	1506.5
62.5°	1481.6	1452.8	1411.7	1370.7	1354.1
65°	1321.3	1296.4	1255.4	1218.3	1197.8
67.5°	1156.7	1135.8	1099.1	1070.3	1053.7
70°	1004.3	987.7	950.6	921.8	905.6
72.5°	848.0	831.4	810.9	782.1	769.8
75°	691.2	683.4	662.4	638.0	646.3
77.5°	551.5	534.9	526.6	514.4	502.2
80°	411.8	407.4	399.1	386.9	378.6
82.5°	279.9	279.9	276.0	259.4	259.4
85°	168.6	164.6	160.7	148.0	144.1
87.5°	74.2	65.9	57.6	45.4	41.0
90°	2.6	30.9	84.1	78.9	81.5
92.5°	53.2	72.1	74.7	77.2	77.2
95°	125.3	149.3	153.6	153.6	149.3
97.5°	208.5	230.8	240.3	240.3	240.3
100°	304.6	324.4	331.2	331.2	328.7
102.5°	405.9	420.5	429.9	432.5	429.9
105°	516.6	523.4	528.6	532.9	532.9
107.5°	626.4	636.7	636.7	638.4	626.4
110°	732.8	746.6	746.6	746.6	739.7



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	847.8	862.4	859.8	853.0	847.8
115°	961.1	974.8	970.5	968.0	961.1
117.5°	1073.5	1092.4	1080.4	1073.5	1066.6
120°	1186.8	1205.6	1186.8	1186.8	1179.0
122.5°	1289.7	1313.8	1301.8	1294.9	1289.7
125°	1397.9	1419.3	1412.5	1404.7	1402.2
127.5°	1503.4	1530.0	1520.6	1510.3	1503.4
130°	1602.1	1633.0	1628.7	1623.5	1614.1
132.5°	1712.8	1736.8	1738.5	1726.5	1719.7
135°	1808.0	1834.6	1839.8	1837.2	1830.4
137.5°	1914.4	1935.9	1940.2	1938.5	1928.2
140°	2008.0	2029.4	2041.4	2041.4	2032.0
142.5°	2104.1	2125.5	2132.4	2135.0	2125.5
145°	2195.1	2212.2	2225.9	2228.5	2219.1
147.5°	2276.6	2298.0	2308.3	2312.6	2303.2
150°	2360.7	2375.3	2384.7	2392.4	2384.7
152.5°	2435.3	2449.9	2461.9	2471.4	2461.9
155°	2510.0	2516.8	2524.6	2536.6	2528.9
157.5°	2574.3	2579.5	2583.8	2600.9	2588.9
160°	2631.8	2637.0	2639.6	2654.1	2643.8
162.5°	2685.0	2685.0	2687.6	2703.9	2691.9
165°	2730.5	2727.9	2727.9	2745.1	2733.1
167.5°	2771.7	2764.0	2764.0	2781.1	2769.1
170°	2802.6	2795.7	2793.2	2810.3	2795.7
172.5°	2824.0	2817.2	2814.6	2831.8	2817.2
175°	2841.2	2834.3	2829.2	2846.4	2831.8
177.5°	2850.6	2843.8	2838.6	2853.2	2838.6
180°	2846.4	2846.4	2846.4	2846.4	2846.4



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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	13.45	14.39	14.34	15.30	16.45	13.01	13.94	13.89	14.85	16.01
	3H	15.11	15.95	16.01	16.87	18.05	14.62	15.46	15.52	16.38	17.56
	4H	15.70	16.50	16.62	17.42	18.61	15.21	16.00	16.12	16.92	18.11
	6H	16.10	16.83	17.03	17.76	18.97	15.60	16.33	16.53	17.26	18.47
	8H	16.21	16.90	17.14	17.85	19.05	15.70	16.40	16.64	17.35	18.55
	12H	16.26	16.92	17.20	17.86	19.09	15.75	16.41	16.69	17.35	18.58
4H	2H	13.92	14.71	14.84	15.64	16.83	13.56	14.36	14.48	15.28	16.47
	3H	15.79	16.45	16.72	17.40	18.61	15.38	16.04	16.31	16.99	18.20
	4H	16.50	17.10	17.44	18.05	19.28	16.07	16.68	17.02	17.63	18.86
	6H	17.01	17.54	17.97	18.51	19.74	16.58	17.10	17.54	18.08	19.31
	8H	17.16	17.65	18.12	18.62	19.86	16.73	17.21	17.68	18.18	19.42
	12H	17.24	17.68	18.21	18.66	19.91	16.79	17.23	17.76	18.21	19.46
8H	4H	16.70	17.19	17.65	18.15	19.39	16.32	16.81	17.28	17.77	19.02
	6H	17.33	17.73	18.31	18.74	19.98	16.94	17.35	17.92	18.35	19.60
	8H	17.54	17.90	18.53	18.90	20.16	17.15	17.51	18.14	18.50	19.76
	12H	17.68	17.99	18.67	18.98	20.29	17.26	17.58	18.26	18.57	19.88
12H	4H	16.69	17.13	17.66	18.11	19.36	16.32	16.76	17.29	17.74	18.99
	6H	17.35	17.71	18.35	18.71	19.97	16.98	17.34	17.97	18.34	19.60
	8H	17.60	17.91	18.59	18.90	20.21	17.22	17.53	18.21	18.52	19.83