

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: P920260

Luminaire Tested: DFN2DIP-SQ3F0-110D110US935-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P920260
REPORT IS A COMBINATION OF REPORTS P900001 AND P896733
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ3F0-110D110US935-FLLFLL
Description: 3 foot, Square Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

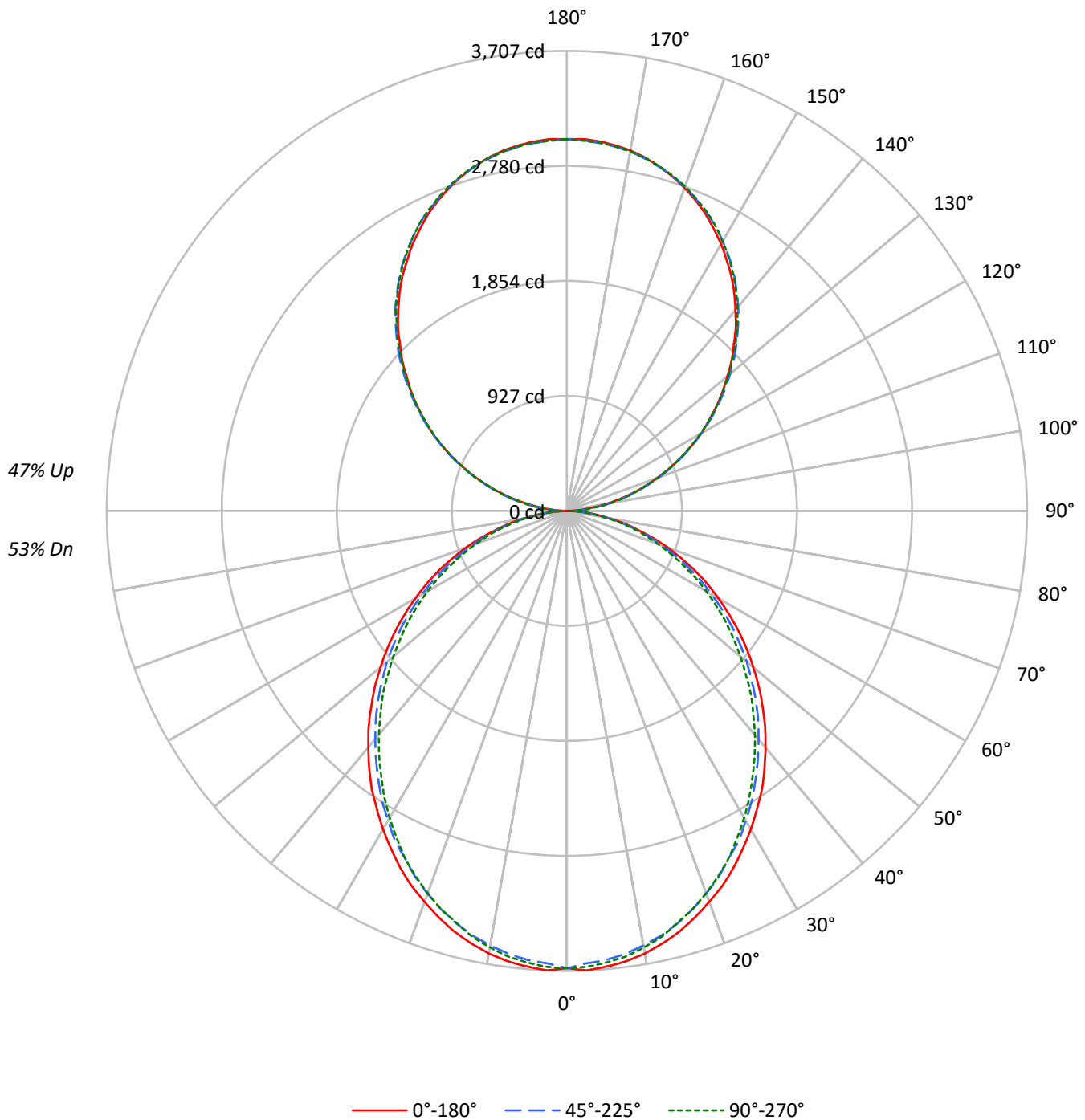
Lumens per Lamp: N/A
Luminaire Lumens: 17758.1 lumens
Efficiency: N/A
Efficacy: 89.8 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.06' x L: 3.06' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 197.8
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
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10
RCR																	
0	108	108	108	108	100	100	100	100	85	85	85	71	71	71	59	59	59
1	98	94	90	87	91	87	84	81	74	72	70	63	61	59	52	51	50
2	90	82	76	71	83	76	71	66	65	61	58	55	52	50	46	44	42
3	82	72	65	59	75	67	61	55	58	53	49	49	45	42	41	38	36
4	75	64	56	50	69	60	52	47	51	46	41	43	39	36	36	33	31
5	69	57	49	43	63	53	46	40	46	40	36	39	35	31	33	29	27
6	63	51	43	37	58	48	40	35	41	36	31	35	31	27	30	26	24
7	59	46	38	33	54	43	36	31	37	32	28	32	28	24	27	24	21
8	54	42	34	29	50	39	32	27	34	29	24	29	25	22	25	21	19
9	51	38	31	26	47	36	29	24	31	26	22	27	23	19	23	20	17
10	47	35	28	23	44	33	26	22	29	23	20	25	21	18	21	18	15

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	4223	4223	4223
5°	4227	4161	4190
10°	4190	4102	4132
15°	4125	4032	4042
20°	4039	3935	3950
25°	3954	3820	3844
30°	3847	3713	3709
35°	3746	3587	3567
40°	3622	3459	3431
45°	3498	3332	3292
50°	3362	3197	3131
55°	3220	3042	2983
60°	3059	2858	2813
65°	2883	2667	2613
70°	2659	2434	2397
75°	2349	2154	2196
80°	1974	1797	1815
85°	1390	1191	1188

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 3498 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	346.9	2.0
10°-20°	975.9	5.5
20°-30°	1434.2	8.1
30°-40°	1665.7	9.4
40°-50°	1663.7	9.4
50°-60°	1450.7	8.2
60°-70°	1072.4	6.0
70°-80°	606.7	3.4
80°-90°	168.6	0.9
90°-100°	185.3	1.0
100°-110°	588.9	3.3
110°-120°	1007.8	5.7
120°-130°	1325.4	7.5
130°-140°	1487.7	8.4
140°-150°	1458.9	8.2
150°-160°	1223.8	6.9
160°-170°	811.6	4.6
170°-180°	283.7	1.6
0°-30°	2757.0	15.5
0°-40°	4422.7	24.9
0°-60°	7537.0	42.4
0°-90°	9384.8	52.8
90°-120°	1782.1	10.0
90°-150°	6054.2	34.1
90°-180°	8373.0	47.2
0°-180°	17758.1	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3685	3685	3685	3685	3685	
5°	3685	3671	3632	3660	3654	350
15°	3508	3487	3441	3455	3437	988
25°	3175	3147	3087	3094	3087	1461
35°	2739	2704	2647	2626	2608	1711
45°	2229	2204	2151	2112	2098	1720
55°	1687	1666	1623	1580	1563	1508
65°	1138	1116	1081	1049	1031	1125
75°	595	588	570	549	556	635
85°	145	142	138	127	124	162
90°	3	32	88	83	86	17
95°	132	157	162	162	157	147
105°	544	551	556	561	561	574
115°	1011	1026	1021	1019	1011	1000
125°	1471	1494	1486	1478	1476	1315
135°	1903	1931	1936	1933	1926	1471
145°	2310	2328	2342	2345	2335	1443
155°	2641	2648	2657	2669	2661	1216
165°	2873	2871	2871	2889	2876	811
175°	2990	2983	2977	2995	2980	284
180°	2995	2995	2995	2995	2995	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3685.2	3685.2	3685.2	3685.2	3685.2
2.5°	3706.6	3688.9	3649.9	3685.2	3678.4
5°	3685.2	3671.3	3632.2	3660.4	3653.6
7.5°	3660.4	3639.4	3600.3	3628.8	3621.7
10°	3621.7	3596.8	3554.4	3582.5	3572.0
12.5°	3568.3	3547.2	3504.8	3522.4	3515.3
15°	3508.1	3487.0	3440.8	3455.1	3437.4
17.5°	3433.7	3412.7	3366.4	3384.1	3366.4
20°	3352.1	3331.0	3281.4	3291.9	3278.1
22.5°	3270.9	3238.9	3192.7	3192.7	3185.5
25°	3175.0	3146.9	3086.7	3093.5	3086.7
27.5°	3068.6	3043.8	2997.9	2987.4	2969.8
30°	2962.6	2934.0	2881.0	2870.5	2856.2
32.5°	2849.0	2828.0	2771.2	2749.8	2735.5
35°	2739.3	2704.0	2647.1	2625.7	2608.0
37.5°	2615.2	2583.3	2526.5	2501.6	2484.0
40°	2487.8	2459.2	2402.4	2370.8	2356.6
42.5°	2363.7	2335.1	2278.7	2243.0	2222.0
45°	2229.1	2204.2	2150.9	2112.2	2097.9
47.5°	2097.9	2073.1	2016.3	1977.2	1956.1
50°	1959.5	1941.9	1892.2	1842.6	1825.0
52.5°	1825.0	1800.1	1754.3	1715.1	1690.3
55°	1687.0	1665.5	1623.1	1580.5	1562.9
57.5°	1548.6	1530.9	1484.7	1442.2	1427.9
60°	1410.2	1396.4	1346.7	1307.6	1297.1
62.5°	1275.7	1250.9	1215.5	1180.2	1165.9
65°	1137.6	1116.2	1080.9	1049.0	1031.3
67.5°	995.9	977.9	946.3	921.5	907.2
70°	864.7	850.4	818.5	793.7	779.7
72.5°	730.1	715.8	698.2	673.4	662.8
75°	595.1	588.4	570.3	549.3	556.5
77.5°	474.8	460.5	453.4	442.9	432.4
80°	354.6	350.8	343.6	333.1	326.0
82.5°	241.0	241.0	237.6	223.3	223.3
85°	145.2	141.7	138.4	127.4	124.1
87.5°	63.9	56.7	49.6	39.1	35.3
90°	2.7	32.5	88.5	83.1	85.8
92.5°	56.0	75.9	78.5	81.3	81.3
95°	131.8	157.1	161.6	161.6	157.1
97.5°	219.5	242.9	252.9	252.9	252.9
100°	320.5	341.3	348.5	348.5	345.9
102.5°	427.1	442.5	452.5	455.1	452.5
105°	543.6	550.9	556.3	560.8	560.8
107.5°	659.2	670.0	670.0	671.8	659.2
110°	771.2	785.7	785.7	785.7	778.4

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	892.2	907.5	904.8	897.6	892.2
115°	1011.4	1025.8	1021.3	1018.6	1011.4
117.5°	1129.7	1149.5	1136.9	1129.7	1122.5
120°	1248.9	1268.8	1248.9	1248.9	1240.8
122.5°	1357.3	1382.5	1369.8	1362.6	1357.3
125°	1471.0	1493.6	1486.3	1478.2	1475.5
127.5°	1582.1	1610.1	1600.2	1589.3	1582.1
130°	1685.9	1718.5	1713.9	1708.5	1698.6
132.5°	1802.4	1827.7	1829.5	1816.9	1809.6
135°	1902.6	1930.6	1936.0	1933.4	1926.1
137.5°	2014.6	2037.2	2041.7	2039.9	2029.1
140°	2113.1	2135.6	2148.3	2148.3	2138.4
142.5°	2214.2	2236.8	2244.0	2246.7	2236.8
145°	2309.9	2328.0	2342.4	2345.1	2335.2
147.5°	2395.7	2418.3	2429.1	2433.6	2423.7
150°	2484.2	2499.6	2509.5	2517.6	2509.5
152.5°	2562.8	2578.1	2590.7	2600.7	2590.7
155°	2641.4	2648.5	2656.7	2669.4	2661.2
157.5°	2709.0	2714.5	2718.9	2737.0	2724.4
160°	2769.6	2775.0	2777.7	2793.1	2782.2
162.5°	2825.5	2825.5	2828.3	2845.4	2832.8
165°	2873.4	2870.7	2870.7	2888.7	2876.1
167.5°	2916.7	2908.6	2908.6	2926.7	2914.0
170°	2949.3	2942.0	2939.4	2957.4	2942.0
172.5°	2971.8	2964.6	2961.9	2980.0	2964.6
175°	2989.9	2982.7	2977.2	2995.3	2980.0
177.5°	2999.8	2992.6	2987.1	3002.6	2987.1
180°	2995.3	2995.3	2995.3	2995.3	2995.3

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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	12.50	13.39	13.43	14.34	15.57	12.06	12.94	12.99	13.89	15.12
	3H	14.16	14.95	15.10	15.91	17.17	13.67	14.46	14.61	15.42	16.68
	4H	14.74	15.50	15.70	16.46	17.72	14.25	15.00	15.21	15.97	17.23
	6H	15.14	15.84	16.11	16.81	18.08	14.64	15.34	15.61	16.31	17.58
	8H	15.25	15.91	16.22	16.89	18.17	14.74	15.41	15.72	16.39	17.66
	12H	15.29	15.92	16.27	16.90	18.20	14.78	15.41	15.77	16.39	17.69
4H	2H	12.96	13.71	13.92	14.68	15.94	12.61	13.36	13.57	14.32	15.59
	3H	14.82	15.45	15.80	16.45	17.72	14.42	15.05	15.39	16.04	17.31
	4H	15.54	16.11	16.52	17.10	18.40	15.11	15.69	16.09	16.67	17.97
	6H	16.05	16.54	17.04	17.55	18.85	15.62	16.11	16.61	17.12	18.42
	8H	16.20	16.66	17.19	17.66	18.98	15.76	16.22	16.75	17.22	18.54
	12H	16.27	16.69	17.28	17.71	19.02	15.82	16.24	16.83	17.26	18.57
8H	4H	15.73	16.19	16.73	17.20	18.51	15.35	15.82	16.35	16.82	18.13
	6H	16.36	16.74	17.38	17.78	19.10	15.97	16.36	16.99	17.40	18.71
	8H	16.57	16.91	17.60	17.94	19.27	16.18	16.52	17.21	17.55	18.88
	12H	16.70	17.00	17.74	18.03	19.40	16.29	16.59	17.33	17.62	18.99
12H	4H	15.72	16.13	16.73	17.15	18.47	15.35	15.77	16.36	16.78	18.10
	6H	16.38	16.72	17.41	17.75	19.08	16.01	16.35	17.04	17.38	18.71
	8H	16.62	16.92	17.66	17.95	19.32	16.24	16.54	17.28	17.57	18.94