

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: P920237

Luminaire Tested: DFN2DIP-SQ3F0-110D050US935-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P920237
REPORT IS A COMBINATION OF REPORTS P901413 AND P898289
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ3F0-110D050US935-FLLONL
Description: 3 foot, Square Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

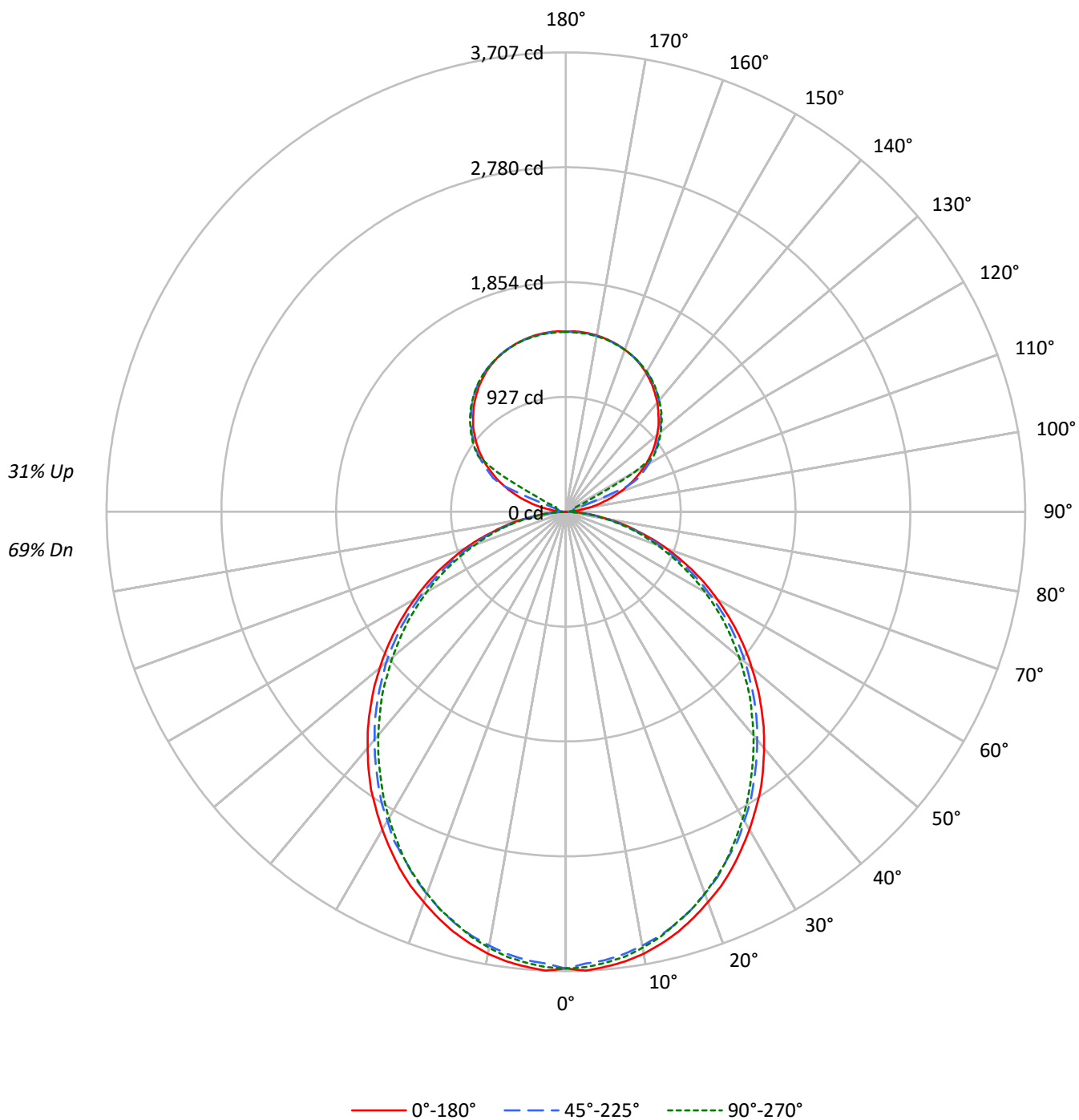
Lumens per Lamp: N/A
Luminaire Lumens: 13638.2 lumens
Efficiency: N/A
Efficacy: 91.7 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.06' x L: 3.06' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 148.8
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	112	112	112	112	105	105	105	105	94	94	94	83	83	83	73	73	73
1	102	98	94	90	96	92	89	86	82	80	77	73	71	69	65	63	62
2	93	85	79	74	87	81	75	70	72	68	64	64	61	58	57	55	52
3	85	75	67	61	80	71	64	59	64	58	54	57	53	49	51	47	45
4	78	66	58	52	73	63	56	50	57	51	46	51	46	42	45	42	38
5	71	59	51	45	67	56	49	43	51	45	40	46	41	37	41	37	33
6	66	53	45	39	62	51	43	38	46	40	35	41	36	32	37	33	30
7	61	48	40	34	57	46	38	33	42	35	31	38	32	29	34	30	26
8	57	44	36	30	53	42	35	29	38	32	27	35	29	26	31	27	24
9	53	40	33	27	50	38	31	26	35	29	25	32	27	23	29	24	21
10	50	37	30	25	47	35	29	24	32	26	22	29	24	21	27	22	19

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	2.5
10°-20°	975.9	7.2
20°-30°	1434.2	10.5
30°-40°	1665.7	12.2
40°-50°	1663.7	12.2
50°-60°	1450.7	10.6
60°-70°	1072.4	7.9
70°-80°	606.7	4.4
80°-90°	162.7	1.2
90°-100°	47.9	0.4
100°-110°	178.6	1.3
110°-120°	473.7	3.5
120°-130°	785.6	5.8
130°-140°	834.5	6.1
140°-150°	775.6	5.7
150°-160°	623.5	4.6
160°-170°	401.8	2.9
170°-180°	138.3	1.0
0°-30°	2757.0	20.2
0°-40°	4422.7	32.4
0°-60°	7537.0	55.3
0°-90°	9378.8	68.8
90°-120°	700.2	5.1
90°-150°	3095.8	22.7
90°-180°	4259.0	31.2
0°-180°	13638.2	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°	1	13	21	26	28	13
95°	68	34	41	46	45	81
105°	320	351	64	76	80	342
115°	604	622	649	162	86	595
125°	855	868	888	896	899	762
135°	1058	1074	1084	1094	1092	817
145°	1227	1226	1244	1251	1246	767
155°	1351	1342	1354	1360	1352	622
165°	1423	1417	1420	1428	1420	402
175°	1456	1449	1451	1458	1448	139
180°	1453	1453	1453	1453	1453	

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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°	1.0	12.6	21.0	26.3	28.3
92.5°	26.3	22.1	25.2	27.4	28.3
95°	68.3	33.6	41.0	46.3	45.2
97.5°	123.0	36.9	53.6	56.8	57.8
100°	186.1	42.1	59.9	68.3	70.4
102.5°	255.5	253.4	62.1	73.5	76.8
105°	319.6	351.2	64.1	75.7	79.9
107.5°	394.3	420.4	66.3	77.7	82.1
110°	465.8	487.8	184.0	78.9	83.0



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	533.0	551.9	534.1	80.9	84.1
115°	604.5	622.3	648.7	162.0	86.3
117.5°	666.5	687.5	705.5	555.0	279.7
120°	735.9	751.7	770.6	783.2	641.3
122.5°	794.7	811.6	832.7	839.0	840.1
125°	854.6	868.4	888.4	895.7	898.9
127.5°	909.3	924.0	940.0	950.4	951.4
130°	960.9	977.7	989.2	1000.8	999.9
132.5°	1013.5	1027.2	1038.6	1048.2	1047.1
135°	1057.6	1074.5	1083.8	1094.5	1092.3
137.5°	1103.8	1116.5	1127.0	1137.6	1134.5
140°	1149.0	1157.5	1169.0	1178.4	1173.3
142.5°	1187.0	1194.4	1208.0	1216.3	1211.1
145°	1226.9	1225.8	1243.6	1251.0	1245.8
147.5°	1261.5	1258.3	1276.3	1281.5	1277.4
150°	1295.2	1287.9	1304.7	1311.0	1305.7
152.5°	1323.5	1315.2	1330.9	1337.3	1329.9
155°	1350.9	1341.5	1354.1	1360.4	1352.0
157.5°	1372.9	1364.6	1374.1	1381.5	1372.9
160°	1392.0	1385.6	1392.0	1398.2	1390.9
162.5°	1408.7	1402.5	1407.6	1415.0	1405.6
165°	1423.4	1417.2	1420.3	1427.6	1420.3
167.5°	1435.0	1428.7	1431.9	1439.2	1429.8
170°	1444.5	1438.1	1440.3	1447.6	1438.1
172.5°	1450.8	1444.5	1446.6	1454.0	1444.5
175°	1456.0	1448.6	1450.8	1458.1	1447.6
177.5°	1458.1	1450.8	1451.9	1459.2	1449.7
180°	1452.8	1452.8	1452.8	1452.8	1452.8

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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	13.82	14.88	14.59	15.68	16.65	13.37	14.43	14.15	15.23	16.21
	3H	15.49	16.44	16.28	17.25	18.25	15.00	15.95	15.79	16.76	17.76
	4H	16.08	16.98	16.89	17.80	18.81	15.59	16.49	16.40	17.30	18.32
	6H	16.49	17.32	17.31	18.14	19.17	15.99	16.82	16.81	17.64	18.67
	8H	16.60	17.39	17.43	18.23	19.26	16.09	16.89	16.92	17.73	18.76
	12H	16.65	17.40	17.49	18.24	19.30	16.14	16.89	16.98	17.73	18.79
4H	2H	14.30	15.20	15.11	16.01	17.03	13.94	14.84	14.75	15.66	16.68
	3H	16.18	16.93	17.00	17.78	18.81	15.77	16.52	16.59	17.37	18.40
	4H	16.89	17.58	17.73	18.43	19.49	16.47	17.15	17.31	18.00	19.06
	6H	17.42	18.01	18.27	18.88	19.95	16.98	17.58	17.84	18.45	19.51
	8H	17.57	18.12	18.43	18.99	20.07	17.13	17.68	17.99	18.55	19.63
	12H	17.65	18.15	18.53	19.04	20.12	17.20	17.70	18.08	18.59	19.67
8H	4H	17.10	17.66	17.96	18.52	19.60	16.73	17.28	17.58	18.15	19.22
	6H	17.74	18.19	18.62	19.11	20.18	17.35	17.81	18.24	18.72	19.80
	8H	17.96	18.36	18.85	19.27	20.36	17.56	17.97	18.46	18.87	19.97
	12H	18.09	18.45	18.99	19.35	20.50	17.68	18.04	18.58	18.94	20.08
12H	4H	17.10	17.59	17.97	18.48	19.57	16.73	17.23	17.61	18.12	19.20
	6H	17.77	18.17	18.66	19.08	20.17	17.39	17.80	18.29	18.71	19.80
	8H	18.01	18.37	18.91	19.27	20.42	17.63	17.99	18.53	18.89	20.04