

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: P917509

Luminaire Tested: DFN2DIP-SQ3F0-110D050US930-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P917509
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-SQ3F0-110D050US930-FLLONL
Description: 3 foot, Square Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

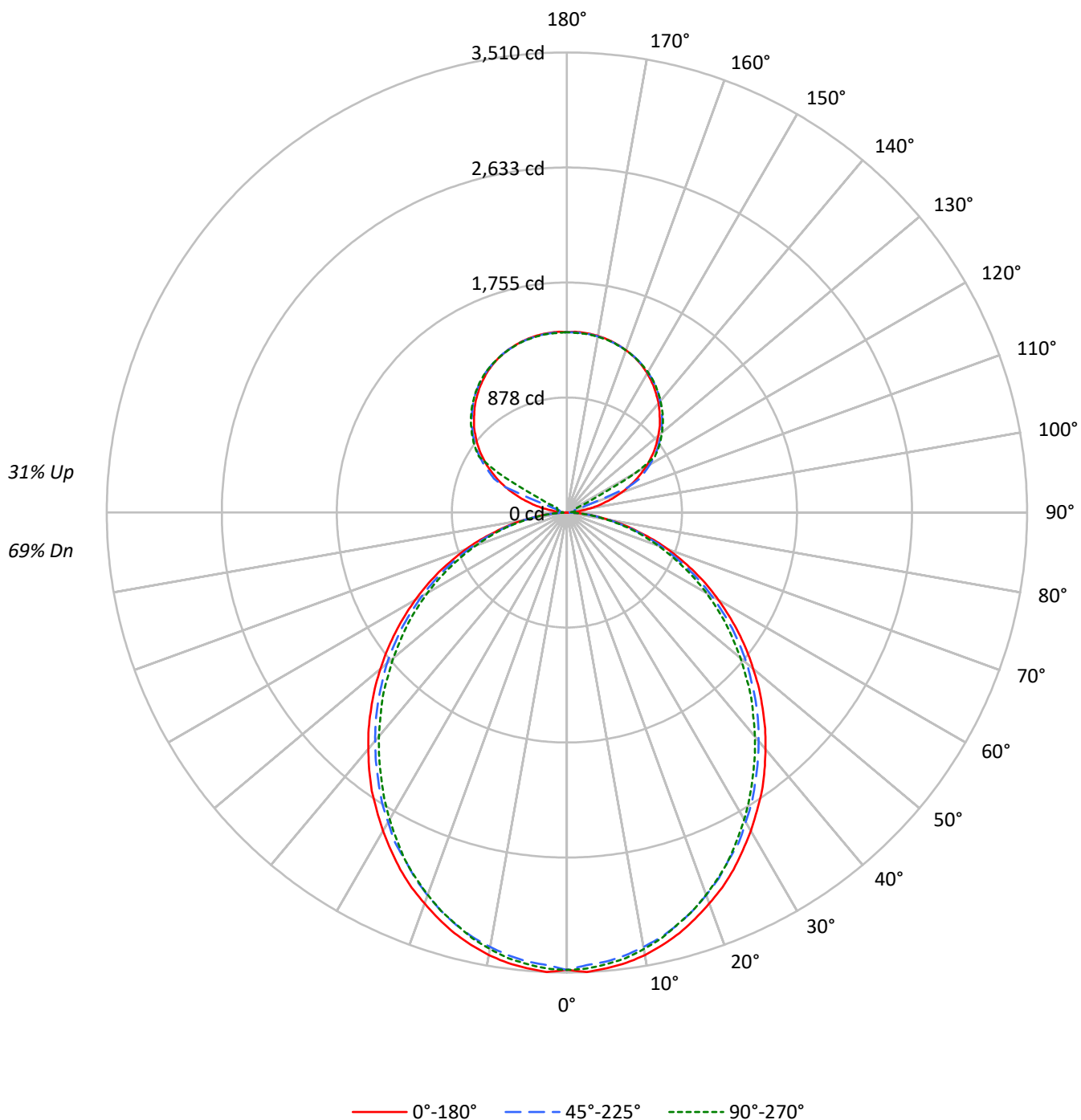
Lumens per Lamp: N/A
Luminaire Lumens: 12914.3 lumens
Efficiency: N/A
Efficacy: 86.8 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.06' x L: 3.06' x H: 0.1')
CIE Type: Semi-Direct

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°	3998	3998	3998
5°	4002	3940	3968
10°	3967	3884	3913
15°	3906	3818	3828
20°	3825	3726	3741
25°	3744	3617	3640
30°	3643	3516	3512
35°	3547	3396	3377
40°	3430	3276	3249
45°	3312	3155	3117
50°	3184	3027	2965
55°	3049	2880	2825
60°	2897	2706	2664
65°	2730	2525	2475
70°	2517	2304	2270
75°	2224	2040	2079
80°	1869	1702	1719
85°	1317	1128	1125

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 3312 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	328.4	2.5
10°-20°	924.1	7.2
20°-30°	1358.1	10.5
30°-40°	1577.3	12.2
40°-50°	1575.4	12.2
50°-60°	1373.7	10.6
60°-70°	1015.5	7.9
70°-80°	574.5	4.4
80°-90°	154.1	1.2
90°-100°	45.4	0.4
100°-110°	169.1	1.3
110°-120°	448.5	3.5
120°-130°	743.9	5.8
130°-140°	790.2	6.1
140°-150°	734.4	5.7
150°-160°	590.4	4.6
160°-170°	380.5	2.9
170°-180°	130.9	1.0
0°-30°	2610.6	20.2
0°-40°	4187.9	32.4
0°-60°	7137.0	55.3
0°-90°	8881.0	68.8
90°-120°	663.0	5.1
90°-150°	2931.5	22.7
90°-180°	4033.0	31.2
0°-180°	12914.3	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3490	3490	3490	3490	3490	
5°	3490	3476	3439	3466	3460	331
15°	3322	3302	3258	3272	3255	936
25°	3006	2980	2923	2929	2923	1383
35°	2594	2560	2507	2486	2470	1620
45°	2111	2087	2037	2000	1987	1629
55°	1597	1577	1537	1497	1480	1428
65°	1077	1057	1024	993	977	1065
75°	564	557	540	520	527	602
85°	138	134	131	121	118	153
90°	1	12	20	25	27	12
95°	65	32	39	44	43	77
105°	303	333	61	72	76	323
115°	572	589	614	153	82	564
125°	809	822	841	848	851	722
135°	1002	1018	1026	1036	1034	774
145°	1162	1161	1178	1185	1180	727
155°	1279	1270	1282	1288	1280	589
165°	1348	1342	1345	1352	1345	381
175°	1379	1372	1374	1381	1371	131
180°	1376	1376	1376	1376	1376	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3489.6	3489.6	3489.6	3489.6	3489.6
2.5°	3509.9	3493.1	3456.1	3489.6	3483.2
5°	3489.6	3476.4	3439.4	3466.1	3459.7
7.5°	3466.1	3446.2	3409.2	3436.2	3429.5
10°	3429.5	3405.9	3365.7	3392.4	3382.4
12.5°	3378.9	3358.9	3318.8	3335.5	3328.7
15°	3321.9	3302.0	3258.2	3271.7	3255.0
17.5°	3251.4	3231.5	3187.7	3204.4	3187.7
20°	3174.2	3154.2	3107.3	3117.2	3104.1
22.5°	3097.3	3067.0	3023.2	3023.2	3016.4
25°	3006.5	2979.8	2922.8	2929.3	2922.8
27.5°	2905.7	2882.2	2838.8	2828.8	2812.1
30°	2805.4	2778.3	2728.1	2718.1	2704.6
32.5°	2697.8	2677.9	2624.1	2603.8	2590.3
35°	2593.9	2560.4	2506.6	2486.3	2469.6
37.5°	2476.4	2446.1	2392.4	2368.8	2352.1
40°	2355.7	2328.7	2274.9	2245.0	2231.5
42.5°	2238.2	2211.2	2157.8	2123.9	2104.0
45°	2110.8	2087.2	2036.7	2000.1	1986.6
47.5°	1986.6	1963.1	1909.3	1872.3	1852.3
50°	1855.5	1838.8	1791.8	1744.8	1728.1
52.5°	1728.1	1704.5	1661.2	1624.1	1600.6
55°	1597.4	1577.1	1536.9	1496.6	1479.9
57.5°	1466.4	1449.7	1405.9	1365.6	1352.1
60°	1335.4	1322.3	1275.2	1238.2	1228.2
62.5°	1207.9	1184.5	1151.0	1117.5	1104.0
65°	1077.3	1057.0	1023.5	993.3	976.6
67.5°	943.1	926.0	896.1	872.6	859.1
70°	818.8	805.3	775.0	751.5	738.3
72.5°	691.4	677.8	661.1	637.6	627.6
75°	563.5	557.2	540.1	520.2	526.9
77.5°	449.6	436.1	429.3	419.4	409.4
80°	335.7	332.2	325.4	315.4	308.7
82.5°	228.2	228.2	225.0	211.5	211.5
85°	137.5	134.2	131.0	120.7	117.5
87.5°	60.5	53.7	47.0	37.0	33.4
90°	1.0	11.9	19.9	24.9	26.8
92.5°	24.9	21.0	23.9	25.9	26.8
95°	64.7	31.8	38.8	43.9	42.8
97.5°	116.4	34.9	50.7	53.8	54.7
100°	176.3	39.9	56.7	64.7	66.7
102.5°	241.9	239.9	58.8	69.6	72.7
105°	302.6	332.6	60.7	71.7	75.7
107.5°	373.3	398.1	62.8	73.6	77.7
110°	441.1	461.9	174.2	74.7	78.6

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	504.8	522.6	505.7	76.6	79.7
115°	572.4	589.3	614.2	153.4	81.7
117.5°	631.1	651.0	668.1	525.5	264.8
120°	696.8	711.8	729.7	741.7	607.2
122.5°	752.5	768.5	788.5	794.4	795.5
125°	809.3	822.3	841.2	848.2	851.2
127.5°	861.0	875.0	890.1	899.9	900.9
130°	909.9	925.9	936.7	947.7	946.8
132.5°	959.7	972.7	983.5	992.5	991.6
135°	1001.5	1017.5	1026.3	1036.4	1034.4
137.5°	1045.2	1057.2	1067.2	1077.2	1074.2
140°	1088.0	1096.1	1106.9	1115.9	1111.0
142.5°	1124.0	1131.0	1143.9	1151.8	1146.8
145°	1161.8	1160.7	1177.6	1184.6	1179.7
147.5°	1194.6	1191.6	1208.5	1213.5	1209.6
150°	1226.5	1219.5	1235.4	1241.4	1236.4
152.5°	1253.3	1245.4	1260.3	1266.3	1259.3
155°	1279.2	1270.3	1282.2	1288.2	1280.3
157.5°	1300.1	1292.2	1301.1	1308.1	1300.1
160°	1318.1	1312.1	1318.1	1324.0	1317.0
162.5°	1333.9	1328.0	1332.9	1339.9	1331.0
165°	1347.9	1342.0	1344.9	1351.8	1344.9
167.5°	1358.9	1352.8	1355.9	1362.9	1353.9
170°	1367.8	1361.8	1363.8	1370.8	1361.8
172.5°	1373.8	1367.8	1369.9	1376.8	1367.8
175°	1378.8	1371.7	1373.8	1380.7	1370.8
177.5°	1380.7	1373.8	1374.8	1381.8	1372.8
180°	1375.7	1375.7	1375.7	1375.7	1375.7

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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	13.63	14.69	14.41	15.49	16.46	13.18	14.24	13.96	15.04	16.02
	3H	15.30	16.25	16.09	17.06	18.06	14.81	15.76	15.60	16.57	17.57
	4H	15.89	16.79	16.70	17.61	18.62	15.40	16.30	16.21	17.11	18.13
	6H	16.30	17.13	17.12	17.95	18.98	15.80	16.63	16.62	17.45	18.48
	8H	16.41	17.20	17.24	18.04	19.07	15.91	16.70	16.73	17.54	18.57
	12H	16.46	17.21	17.30	18.05	19.11	15.95	16.70	16.79	17.54	18.60
4H	2H	14.11	15.01	14.92	15.83	16.84	13.75	14.65	14.57	15.47	16.49
	3H	15.99	16.74	16.81	17.59	18.62	15.58	16.33	16.40	17.18	18.21
	4H	16.71	17.39	17.54	18.24	19.30	16.28	16.96	17.12	17.81	18.87
	6H	17.23	17.82	18.08	18.69	19.76	16.79	17.39	17.65	18.26	19.32
	8H	17.38	17.93	18.24	18.80	19.88	16.94	17.49	17.80	18.36	19.44
	12H	17.46	17.96	18.34	18.85	19.93	17.01	17.51	17.89	18.40	19.48
8H	4H	16.91	17.47	17.77	18.34	19.41	16.54	17.09	17.39	17.96	19.04
	6H	17.55	18.00	18.43	18.92	19.99	17.16	17.62	18.05	18.53	19.61
	8H	17.77	18.17	18.66	19.08	20.17	17.37	17.78	18.27	18.68	19.78
	12H	17.90	18.26	18.80	19.16	20.31	17.49	17.85	18.39	18.75	19.89
12H	4H	16.91	17.41	17.79	18.29	19.38	16.54	17.04	17.42	17.93	19.01
	6H	17.58	17.98	18.47	18.89	19.98	17.20	17.61	18.10	18.52	19.61
	8H	17.82	18.18	18.72	19.08	20.23	17.44	17.80	18.34	18.70	19.85