

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: P925617

Luminaire Tested: DFN2DIP-SQ3F0-090D040US950-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P925617
REPORT IS A COMBINATION OF REPORTS P901391 AND P898289
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ3F0-090D040US950-FLLONL
Description: 3 foot, Square Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

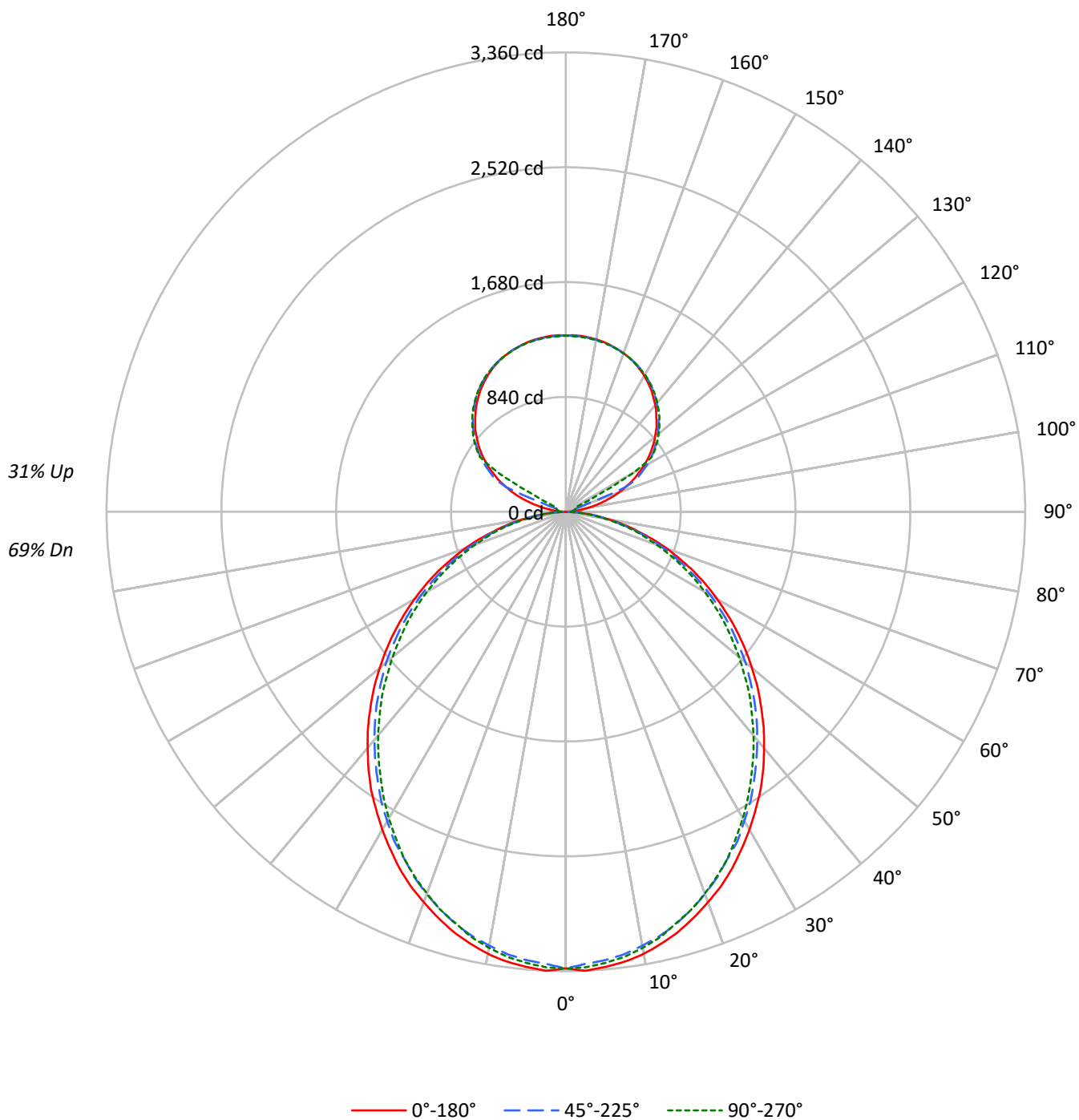
Lumens per Lamp: N/A
Luminaire Lumens: 12278.0 lumens
Efficiency: N/A
Efficacy: 104.0 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.06' x L: 3.06' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 118.1
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.996
Total Harmonic Distortion (THDi): 0.064
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	106	106	106	106	94	94	94	83	83	83	74	74	74
1	102	98	94	90	96	92	89	86	83	80	77	74	72	70	65	64	62
2	93	85	79	74	88	81	75	70	72	68	64	65	61	58	57	55	53
3	85	75	67	61	80	71	64	59	64	59	54	57	53	49	51	48	45
4	78	67	58	52	73	63	56	50	57	51	46	51	46	42	46	42	39
5	71	59	51	45	67	57	49	43	51	45	40	46	41	37	41	37	34
6	66	53	45	39	62	51	43	38	46	40	35	42	36	32	37	33	30
7	61	48	40	34	58	46	39	33	42	36	31	38	33	29	34	30	26
8	57	44	36	31	54	42	35	30	38	32	28	35	29	26	31	27	24
9	53	40	33	27	50	39	31	27	35	29	25	32	27	23	29	25	21
10	50	37	30	25	47	36	29	24	32	27	22	30	25	21	27	23	20

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3828	3828	3828
5°	3832	3772	3799
10°	3798	3719	3746
15°	3740	3655	3664
20°	3662	3567	3581
25°	3584	3463	3485
30°	3488	3366	3362
35°	3396	3252	3233
40°	3283	3136	3110
45°	3171	3020	2984
50°	3048	2898	2839
55°	2919	2758	2704
60°	2773	2591	2551
65°	2613	2417	2369
70°	2410	2206	2173
75°	2130	1953	1991
80°	1790	1629	1645
85°	1260	1080	1077

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
Vertical Angle: 45°
Luminance: 3171 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	314.4	2.6
10°-20°	884.7	7.2
20°-30°	1300.2	10.6
30°-40°	1510.1	12.3
40°-50°	1508.2	12.3
50°-60°	1315.1	10.7
60°-70°	972.2	7.9
70°-80°	550.0	4.5
80°-90°	147.4	1.2
90°-100°	42.5	0.3
100°-110°	158.3	1.3
110°-120°	419.9	3.4
120°-130°	696.4	5.7
130°-140°	739.7	6.0
140°-150°	687.5	5.6
150°-160°	552.7	4.5
160°-170°	356.1	2.9
170°-180°	122.6	1.0
0°-30°	2499.3	20.4
0°-40°	4009.4	32.7
0°-60°	6832.8	55.7
0°-90°	8502.4	69.2
90°-120°	620.6	5.1
90°-150°	2744.1	22.4
90°-180°	3776.0	30.8
0°-180°	12278.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3341	3341	3341	3341	3341	
5°	3341	3328	3293	3318	3312	317
15°	3180	3161	3119	3132	3116	896
25°	2878	2853	2798	2804	2798	1324
35°	2483	2451	2400	2380	2364	1551
45°	2021	1998	1950	1915	1902	1560
55°	1529	1510	1471	1433	1417	1367
65°	1031	1012	980	951	935	1020
75°	540	533	517	498	504	576
85°	132	128	126	116	112	147
90°	1	11	19	23	25	11
95°	60	30	36	41	40	72
105°	283	311	57	67	71	303
115°	536	552	575	144	76	527
125°	758	770	787	794	797	676
135°	938	952	961	970	968	724
145°	1088	1087	1102	1109	1104	680
155°	1198	1189	1200	1206	1198	552
165°	1262	1256	1259	1266	1259	356
175°	1291	1284	1286	1292	1283	123
180°	1288	1288	1288	1288	1288	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3340.8	3340.8	3340.8	3340.8	3340.8
2.5°	3360.3	3344.2	3308.9	3340.8	3334.7
5°	3340.8	3328.2	3292.8	3318.4	3312.2
7.5°	3318.4	3299.3	3263.8	3289.8	3283.3
10°	3283.3	3260.8	3222.2	3247.8	3238.3
12.5°	3234.8	3215.7	3177.3	3193.2	3186.8
15°	3180.3	3161.3	3119.3	3132.3	3116.2
17.5°	3112.8	3093.7	3051.8	3067.9	3051.8
20°	3038.9	3019.8	2974.8	2984.3	2971.7
22.5°	2965.2	2936.3	2894.3	2894.3	2887.9
25°	2878.3	2852.7	2798.3	2804.4	2798.3
27.5°	2781.9	2759.3	2717.9	2708.3	2692.3
30°	2685.8	2659.8	2611.8	2602.2	2589.3
32.5°	2582.9	2563.8	2512.3	2492.9	2479.9
35°	2483.4	2451.3	2399.8	2380.4	2364.4
37.5°	2370.9	2341.9	2290.4	2267.9	2251.9
40°	2255.3	2229.4	2177.9	2149.3	2136.4
42.5°	2142.8	2116.9	2065.8	2033.5	2014.4
45°	2020.8	1998.3	1949.9	1914.8	1901.9
47.5°	1901.9	1879.4	1827.9	1792.5	1773.4
50°	1776.4	1760.4	1715.4	1670.5	1654.4
52.5°	1654.4	1631.9	1590.3	1554.9	1532.4
55°	1529.4	1509.9	1471.4	1432.9	1416.9
57.5°	1403.9	1387.9	1346.0	1307.5	1294.5
60°	1278.5	1265.9	1220.8	1185.4	1175.9
62.5°	1156.4	1133.9	1101.9	1069.9	1056.9
65°	1031.4	1011.9	979.9	950.9	934.9
67.5°	902.9	886.6	857.8	835.4	822.4
70°	783.9	770.9	742.0	719.5	706.9
72.5°	661.9	648.9	632.9	610.5	600.9
75°	539.6	533.4	517.1	498.0	504.5
77.5°	430.4	417.6	411.1	401.5	392.0
80°	321.4	318.0	311.5	301.9	295.5
82.5°	218.5	218.5	215.4	202.4	202.4
85°	131.6	128.5	125.5	115.5	112.5
87.5°	57.9	51.4	45.0	35.5	32.1
90°	0.9	11.2	18.6	23.4	25.1
92.5°	23.4	19.6	22.3	24.2	25.1
95°	60.5	29.8	36.3	41.0	40.1
97.5°	109.0	32.6	47.5	50.4	51.2
100°	164.9	37.3	53.1	60.5	62.4
102.5°	226.4	224.7	55.0	65.2	68.0
105°	283.2	311.3	56.9	67.1	70.8
107.5°	349.5	372.7	58.8	69.0	72.7
110°	412.9	432.4	163.1	69.9	73.6

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	472.5	489.2	473.4	71.7	74.6
115°	535.8	551.6	575.0	143.5	76.5
117.5°	590.8	609.4	625.3	492.0	247.8
120°	652.3	666.3	683.1	694.3	568.5
122.5°	704.4	719.4	738.1	743.6	744.6
125°	757.6	769.8	787.4	794.0	796.8
127.5°	806.0	819.1	833.1	842.5	843.3
130°	851.7	866.7	876.8	887.1	886.3
132.5°	898.3	910.5	920.7	929.1	928.2
135°	937.5	952.5	960.8	970.1	968.3
137.5°	978.4	989.6	999.0	1008.3	1005.5
140°	1018.5	1026.0	1036.2	1044.6	1040.0
142.5°	1052.2	1058.7	1070.8	1078.1	1073.5
145°	1087.6	1086.6	1102.3	1108.9	1104.3
147.5°	1118.2	1115.4	1131.3	1135.9	1132.3
150°	1148.0	1141.6	1156.5	1162.1	1157.4
152.5°	1173.2	1165.8	1179.7	1185.3	1178.9
155°	1197.5	1189.2	1200.3	1205.9	1198.4
157.5°	1217.0	1209.6	1218.1	1224.6	1217.0
160°	1233.8	1228.2	1233.8	1239.3	1232.9
162.5°	1248.7	1243.2	1247.8	1254.3	1245.9
165°	1261.8	1256.2	1259.0	1265.5	1259.0
167.5°	1272.1	1266.3	1269.3	1275.8	1267.4
170°	1280.5	1274.8	1276.6	1283.2	1274.8
172.5°	1286.0	1280.5	1282.4	1288.9	1280.5
175°	1290.6	1284.1	1286.0	1292.5	1283.2
177.5°	1292.5	1286.0	1286.9	1293.5	1285.1
180°	1287.9	1287.9	1287.9	1287.9	1287.9

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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	13.51	14.58	14.29	15.37	16.34	13.07	14.13	13.84	14.93	15.90
	3H	15.18	16.14	15.97	16.95	17.94	14.69	15.65	15.48	16.46	17.45
	4H	15.78	16.68	16.58	17.49	18.50	15.28	16.19	16.09	17.00	18.01
	6H	16.18	17.02	17.00	17.84	18.86	15.68	16.52	16.50	17.34	18.36
	8H	16.29	17.09	17.12	17.93	18.95	15.79	16.59	16.62	17.43	18.45
	12H	16.35	17.11	17.18	17.94	18.99	15.84	16.60	16.67	17.43	18.48
4H	2H	14.00	14.90	14.80	15.71	16.72	13.64	14.54	14.45	15.36	16.36
	3H	15.87	16.63	16.69	17.48	18.50	15.47	16.22	16.28	17.07	18.09
	4H	16.59	17.28	17.43	18.12	19.18	16.17	16.86	17.00	17.70	18.75
	6H	17.11	17.71	17.96	18.58	19.64	16.68	17.28	17.53	18.15	19.20
	8H	17.27	17.82	18.12	18.69	19.76	16.83	17.39	17.68	18.25	19.32
	12H	17.35	17.85	18.22	18.73	19.81	16.90	17.40	17.77	18.28	19.36
8H	4H	16.80	17.36	17.65	18.22	19.29	16.42	16.98	17.28	17.84	18.91
	6H	17.43	17.90	18.32	18.80	19.87	17.05	17.51	17.93	18.42	19.49
	8H	17.65	18.06	18.55	18.96	20.05	17.26	17.67	18.15	18.57	19.66
	12H	17.79	18.15	18.69	19.04	20.18	17.38	17.74	18.28	18.63	19.77
12H	4H	16.80	17.30	17.67	18.18	19.26	16.43	16.93	17.30	17.81	18.89
	6H	17.46	17.87	18.36	18.77	19.86	17.09	17.50	17.98	18.40	19.49
	8H	17.71	18.07	18.61	18.96	20.10	17.33	17.69	18.23	18.58	19.72

END OF REPORT