

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: P909171

Luminaire Tested: DFN2DIP-SQ3F0-060D110US840-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P909171
REPORT IS A COMBINATION OF REPORTS P901512 AND P898289
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ3F0-060D110US840-RLLONL
Description: 3 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

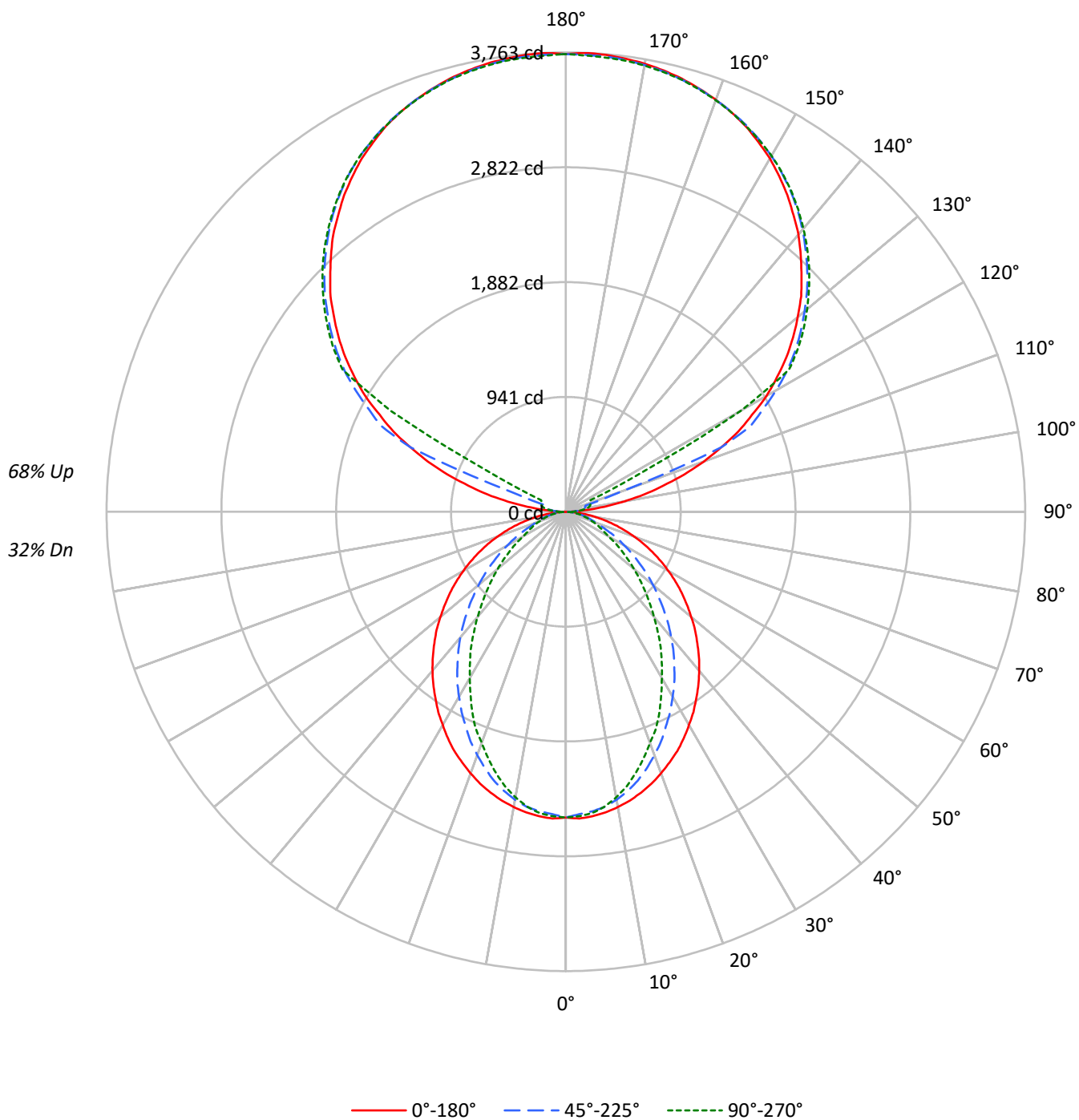
Lumens per Lamp: N/A
Luminaire Lumens: 16147.7 lumens
Efficiency: N/A
Efficacy: 115.9 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.06' x L: 3.06' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 139.3
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9971
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	103	103	103	103	93	93	93	93	73	73	73	56	56	56	40	40	40
1	94	90	86	83	85	81	78	75	65	63	61	49	48	47	35	35	34
2	86	79	73	68	77	71	66	62	57	54	51	44	42	40	31	30	29
3	78	70	63	57	70	63	57	52	50	46	43	39	36	34	28	26	25
4	72	62	54	48	64	56	49	44	45	40	37	35	32	29	25	23	22
5	66	55	47	42	59	50	43	38	40	35	32	31	28	25	23	21	19
6	61	49	42	36	55	45	38	33	36	31	28	28	25	22	21	19	17
7	56	44	37	32	51	41	34	29	33	28	24	26	22	20	19	17	15
8	52	40	33	28	47	37	30	26	30	25	22	24	20	18	18	15	14
9	48	37	30	25	44	34	27	23	27	23	19	22	18	16	16	14	12
10	45	34	27	22	41	31	25	21	25	21	17	20	17	14	15	13	11

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2869	2869	2869
5°	2872	2822	2841
10°	2842	2765	2748
15°	2801	2671	2604
20°	2747	2544	2428
25°	2692	2401	2258
30°	2619	2255	2042
35°	2548	2098	1853
40°	2475	1935	1637
45°	2390	1755	1440
50°	2302	1574	1248
55°	2210	1380	1064
60°	2104	1178	875
65°	1981	973	787
70°	1832	781	711
75°	1646	685	644
80°	1375	568	556
85°	933	370	412

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 2567 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	234.7	1.5
10°-20°	644.3	4.0
20°-30°	904.6	5.6
30°-40°	986.1	6.1
40°-50°	906.3	5.6
50°-60°	711.7	4.4
60°-70°	463.3	2.9
70°-80°	238.5	1.5
80°-90°	67.5	0.4
90°-100°	123.6	0.8
100°-110°	460.8	2.9
110°-120°	1222.2	7.6
120°-130°	2027.1	12.6
130°-140°	2153.3	13.3
140°-150°	2001.2	12.4
150°-160°	1608.9	10.0
160°-170°	1036.7	6.4
170°-180°	356.8	2.2
0°-30°	1783.6	11.0
0°-40°	2769.6	17.2
0°-60°	4387.7	27.2
0°-90°	5156.9	31.9
90°-120°	1806.7	11.2
90°-150°	7988.3	49.5
90°-180°	10991.0	68.1
0°-180°	16147.7	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2504	2504	2504	2504	2504	
5°	2504	2493	2463	2484	2477	237
15°	2382	2357	2280	2237	2214	671
25°	2162	2090	1940	1847	1813	994
35°	1863	1747	1548	1405	1355	1166
45°	1523	1371	1133	972	918	1176
55°	1158	981	736	601	558	1035
65°	782	598	394	317	310	775
75°	417	258	181	165	163	441
85°	97	50	43	43	43	112
90°	3	32	54	68	73	15
95°	176	87	106	120	117	209
105°	825	906	166	195	206	881
115°	1560	1606	1674	418	223	1536
125°	2205	2241	2292	2311	2319	1967
135°	2729	2773	2797	2824	2819	2108
145°	3166	3163	3209	3228	3215	1980
155°	3486	3462	3494	3510	3489	1606
165°	3673	3657	3665	3684	3665	1038
175°	3757	3738	3744	3763	3736	358
180°	3749	3749	3749	3749	3749	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2504.3	2504.3	2504.3	2504.3	2504.3
2.5°	2515.6	2504.3	2479.2	2502.0	2497.5
5°	2504.3	2493.0	2463.4	2483.9	2477.1
7.5°	2483.9	2470.3	2438.6	2447.5	2436.2
10°	2456.6	2440.7	2395.6	2388.6	2375.1
12.5°	2422.8	2402.3	2341.0	2327.5	2302.5
15°	2381.9	2356.8	2279.9	2236.9	2214.2
17.5°	2334.3	2297.9	2202.7	2152.9	2116.7
20°	2279.9	2234.4	2121.2	2064.7	2014.7
22.5°	2221.0	2168.8	2037.3	1960.4	1926.4
25°	2162.1	2089.5	1940.0	1847.1	1813.0
27.5°	2091.9	2014.7	1849.3	1742.7	1690.6
30°	2017.1	1930.8	1749.5	1634.1	1572.8
32.5°	1944.5	1840.2	1654.6	1518.4	1461.7
35°	1863.0	1747.4	1548.0	1405.1	1355.1
37.5°	1783.6	1658.8	1448.2	1291.7	1235.2
40°	1699.7	1563.9	1343.8	1183.0	1124.1
42.5°	1613.7	1468.6	1239.7	1071.9	1015.4
45°	1523.0	1371.0	1133.3	972.1	917.8
47.5°	1436.9	1276.1	1031.3	870.2	820.4
50°	1341.7	1180.8	931.5	775.0	727.6
52.5°	1248.6	1078.6	836.3	686.7	643.7
55°	1158.0	981.3	736.5	600.7	557.5
57.5°	1065.2	883.8	648.2	521.3	484.9
60°	970.0	788.7	555.2	439.8	403.4
62.5°	877.2	695.9	475.8	367.2	349.1
65°	781.9	598.2	394.4	317.4	310.4
67.5°	691.3	507.6	317.4	278.7	272.0
70°	596.0	419.3	262.8	240.2	231.1
72.5°	505.4	337.6	219.7	201.8	197.1
75°	417.0	258.2	181.3	165.4	163.3
77.5°	328.7	183.5	142.8	133.7	129.2
80°	246.9	131.5	108.7	99.8	99.8
82.5°	172.2	88.5	74.7	70.2	70.2
85°	97.4	49.8	43.0	43.0	43.0
87.5°	36.4	18.1	18.1	15.9	15.9
90°	2.6	32.5	54.1	68.0	73.1
92.5°	68.0	57.1	65.0	70.6	73.1
95°	176.2	86.6	105.6	119.5	116.6
97.5°	317.3	95.0	138.1	146.5	149.2
100°	480.3	108.6	154.6	176.2	181.7
102.5°	659.0	653.9	160.1	189.8	198.1
105°	824.7	906.2	165.6	195.2	206.2
107.5°	1017.3	1084.9	171.1	200.7	211.7
110°	1201.8	1258.6	474.8	203.6	214.2

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1375.5	1424.1	1378.1	208.7	217.1
115°	1559.7	1605.8	1673.9	417.8	222.6
117.5°	1719.9	1774.0	1820.4	1432.2	721.5
120°	1899.0	1939.5	1988.5	2021.0	1654.8
122.5°	2050.7	2094.2	2148.6	2164.7	2167.7
125°	2205.3	2240.8	2292.3	2311.3	2319.4
127.5°	2346.4	2384.4	2425.3	2452.4	2455.0
130°	2479.4	2522.9	2552.5	2582.5	2580.0
132.5°	2615.0	2650.5	2680.2	2704.6	2702.1
135°	2729.2	2772.6	2796.7	2824.2	2818.6
137.5°	2848.3	2880.8	2908.2	2935.3	2927.2
140°	2965.0	2986.8	3016.5	3040.9	3027.4
142.5°	3062.8	3081.8	3116.9	3138.6	3125.0
145°	3165.9	3163.0	3209.0	3228.1	3214.6
147.5°	3255.2	3247.1	3293.2	3306.7	3296.1
150°	3342.2	3323.2	3366.6	3382.7	3369.2
152.5°	3415.3	3393.7	3434.2	3450.7	3431.7
155°	3485.9	3461.6	3494.1	3510.3	3488.7
157.5°	3542.8	3521.2	3545.7	3564.7	3542.8
160°	3591.8	3575.3	3591.8	3607.8	3588.9
162.5°	3634.9	3618.9	3632.4	3651.4	3626.9
165°	3673.0	3656.8	3664.9	3683.9	3664.9
167.5°	3702.9	3686.5	3694.9	3713.9	3689.4
170°	3727.4	3711.0	3716.4	3735.5	3711.0
172.5°	3743.5	3727.4	3732.9	3751.9	3727.4
175°	3757.0	3738.0	3743.5	3762.6	3735.5
177.5°	3762.6	3743.5	3746.4	3765.4	3740.9
180°	3749.0	3749.0	3749.0	3749.0	3749.0

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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	8.80	9.50	9.91	10.60	12.11	4.76	5.47	5.87	6.56	8.07
	3H	10.47	11.09	11.58	12.20	13.72	5.94	6.56	7.05	7.67	9.19
	4H	11.06	11.66	12.19	12.77	14.30	6.38	6.97	7.50	8.08	9.61
	6H	11.48	12.02	12.61	13.13	14.68	6.68	7.23	7.81	8.34	9.88
	8H	11.60	12.12	12.73	13.24	14.78	6.77	7.29	7.90	8.41	9.95
	12H	11.65	12.15	12.79	13.26	14.82	6.80	7.30	7.94	8.42	9.98
4H	2H	8.80	9.40	9.93	10.50	12.04	5.34	5.94	6.47	7.04	8.57
	3H	10.61	11.11	11.75	12.24	13.79	6.67	7.17	7.81	8.30	9.84
	4H	11.30	11.75	12.44	12.87	14.44	7.21	7.66	8.35	8.79	10.35
	6H	11.80	12.19	12.95	13.34	14.89	7.61	8.00	8.76	9.15	10.70
	8H	11.97	12.34	13.12	13.47	15.04	7.74	8.10	8.88	9.24	10.81
	12H	12.06	12.39	13.22	13.54	15.11	7.79	8.12	8.95	9.27	10.85
8H	4H	11.26	11.62	12.40	12.75	14.33	7.48	7.84	8.62	8.98	10.55
	6H	11.81	12.11	12.98	13.29	14.86	7.98	8.28	9.15	9.46	11.03
	8H	12.02	12.29	13.19	13.44	15.03	8.17	8.43	9.34	9.59	11.18
	12H	12.15	12.38	13.33	13.54	15.16	8.28	8.51	9.45	9.66	11.28
12H	4H	11.20	11.53	12.36	12.68	14.25	7.47	7.80	8.63	8.95	10.53
	6H	11.79	12.05	12.96	13.20	14.79	8.03	8.29	9.20	9.45	11.04
	8H	12.00	12.23	13.17	13.38	15.00	8.23	8.46	9.40	9.61	11.24