

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: P917890

Luminaire Tested: DFN2DIP-SQ4F0-160D120US930-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P917890
REPORT IS A COMBINATION OF REPORTS P900184 AND P896915
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-160D120US930-RLLFLL
Description: 4 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

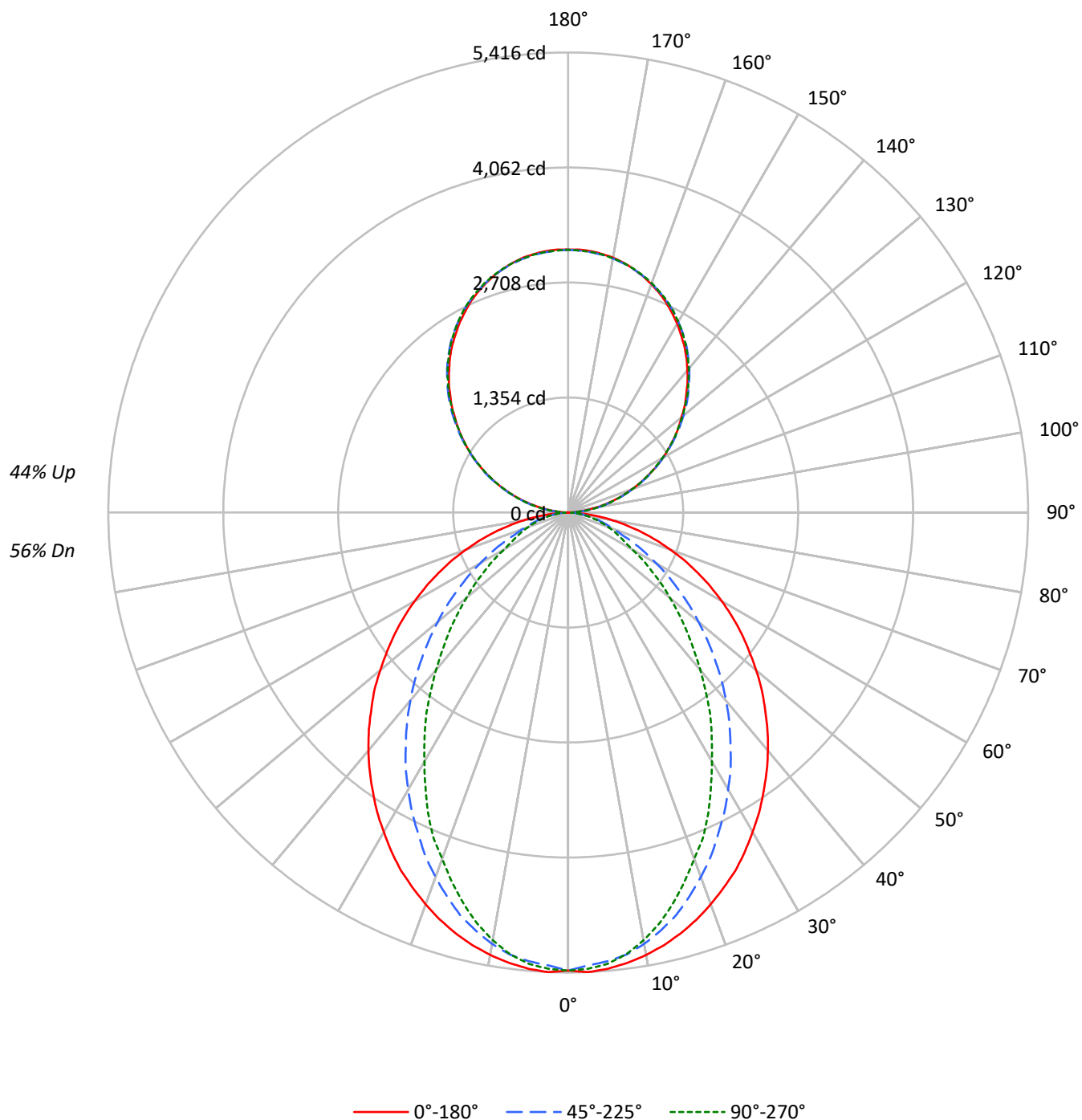
Lumens per Lamp: N/A
Luminaire Lumens: 19746.5 lumens
Efficiency: N/A
Efficacy: 76.9 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 256.8
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	109	109	109	109	101	101	101	101	87	87	87	74	74	74	62	62	62
1	100	96	92	88	93	89	86	83	77	75	72	66	64	63	55	54	53
2	91	84	78	73	85	79	73	69	68	64	61	58	56	53	49	47	46
3	84	74	67	62	78	70	63	58	61	56	52	52	49	46	44	42	40
4	77	66	59	53	71	62	55	50	54	49	45	47	43	40	40	37	35
5	71	59	51	46	66	56	49	43	49	43	39	42	38	35	36	33	30
6	65	53	46	40	61	50	43	38	44	38	34	38	34	31	33	30	27
7	61	48	41	35	56	46	39	34	40	35	30	35	31	27	30	27	24
8	56	44	37	31	52	42	35	30	37	31	27	32	28	25	28	25	22
9	53	41	33	28	49	38	32	27	34	28	25	30	25	22	26	23	20
10	49	37	30	25	46	35	29	24	31	26	22	28	23	20	24	21	18

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3783	3783	3783
5°	3789	3724	3748
10°	3751	3651	3627
15°	3700	3531	3439
20°	3631	3366	3209
25°	3561	3180	2986
30°	3467	2989	2704
35°	3375	2784	2455
40°	3282	2572	2170
45°	3173	2337	1912
50°	3060	2099	1659
55°	2942	1845	1417
60°	2806	1579	1167
65°	2650	1308	1052
70°	2460	1056	954
75°	2222	932	870
80°	1877	785	758
85°	1306	528	578

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 3173 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	505.3	2.6
10°-20°	1387.1	7.0
20°-30°	1947.5	9.9
30°-40°	2122.9	10.8
40°-50°	1951.1	9.9
50°-60°	1532.3	7.8
60°-70°	997.4	5.1
70°-80°	513.4	2.6
80°-90°	139.9	0.7
90°-100°	191.5	1.0
100°-110°	608.3	3.1
110°-120°	1041.1	5.3
120°-130°	1369.2	6.9
130°-140°	1536.9	7.8
140°-150°	1507.1	7.6
150°-160°	1264.2	6.4
160°-170°	838.4	4.2
170°-180°	293.0	1.5
0°-30°	3839.9	19.4
0°-40°	5962.7	30.2
0°-60°	9446.2	47.8
0°-90°	11096.8	56.2
90°-120°	1840.9	9.3
90°-150°	6254.0	31.7
90°-180°	8650.0	43.8
0°-180°	19746.5	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	5391	5391	5391	5391	5391	
5°	5391	5367	5303	5347	5333	511
15°	5128	5074	4908	4816	4767	1445
25°	4655	4498	4176	3977	3903	2141
35°	4011	3762	3333	3025	2918	2510
45°	3279	2952	2440	2093	1976	2532
55°	2493	2112	1586	1293	1200	2228
65°	1683	1288	849	683	668	1669
75°	898	556	390	356	352	949
85°	210	107	93	93	93	241
90°	3	34	91	86	89	19
95°	136	162	167	167	162	152
105°	562	569	575	579	579	593
115°	1045	1060	1055	1052	1045	1033
125°	1520	1543	1536	1527	1524	1358
135°	1965	1994	2000	1997	1990	1519
145°	2386	2405	2420	2423	2412	1491
155°	2728	2736	2744	2757	2749	1256
165°	2968	2966	2966	2984	2971	837
175°	3089	3081	3076	3094	3078	293
180°	3094	3094	3094	3094	3094	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	5391.4	5391.4	5391.4	5391.4	5391.4
2.5°	5415.7	5391.4	5337.5	5386.8	5376.9
5°	5391.4	5367.0	5303.4	5347.4	5332.9
7.5°	5347.4	5318.4	5250.0	5269.2	5244.9
10°	5288.9	5254.8	5157.4	5142.4	5113.4
12.5°	5215.9	5171.9	5039.9	5010.9	4957.1
15°	5127.9	5074.1	4908.4	4815.7	4767.0
17.5°	5025.4	4947.2	4742.3	4635.1	4556.9
20°	4908.4	4810.6	4566.7	4445.1	4337.5
22.5°	4781.6	4669.2	4386.1	4220.5	4147.4
25°	4654.8	4498.4	4176.4	3976.6	3903.2
27.5°	4503.6	4337.5	3981.3	3752.0	3639.7
30°	4342.6	4156.8	3766.4	3518.0	3386.0
32.5°	4186.3	3961.6	3562.0	3269.0	3146.8
35°	4010.8	3761.8	3332.7	3025.2	2917.5
37.5°	3840.0	3571.3	3117.9	2780.8	2659.2
40°	3659.3	3366.9	2893.2	2546.8	2420.0
42.5°	3474.0	3161.8	2669.0	2307.7	2186.1
45°	3278.8	2951.7	2439.7	2092.9	1975.9
47.5°	3093.5	2747.2	2220.2	1873.4	1766.3
50°	2888.5	2542.2	2005.4	1668.4	1566.4
52.5°	2688.2	2322.2	1800.4	1478.5	1385.8
55°	2493.0	2112.5	1585.6	1293.1	1200.4
57.5°	2293.2	1902.9	1395.6	1122.3	1044.1
60°	2088.2	1697.9	1195.2	946.8	868.6
62.5°	1888.4	1498.1	1024.4	790.4	751.6
65°	1683.4	1287.9	849.0	683.3	668.3
67.5°	1488.2	1092.7	683.3	600.0	585.5
70°	1283.3	902.8	565.8	517.1	497.5
72.5°	1088.1	726.8	473.1	434.3	424.4
75°	897.6	556.0	390.3	356.1	351.5
77.5°	707.6	394.9	307.4	287.8	278.0
80°	531.7	283.2	234.0	214.8	214.8
82.5°	370.6	190.5	161.0	151.2	151.2
85°	209.6	107.1	92.7	92.7	92.7
87.5°	78.2	38.8	38.8	34.2	34.2
90°	2.8	33.6	91.4	85.9	88.6
92.5°	57.8	78.4	81.1	84.0	84.0
95°	136.2	162.3	167.0	167.0	162.3
97.5°	226.7	250.9	261.2	261.2	261.2
100°	331.2	352.6	360.0	360.0	357.3
102.5°	441.2	457.1	467.3	470.2	467.3
105°	561.6	569.0	574.6	579.3	579.3
107.5°	680.9	692.2	692.2	694.0	680.9
110°	796.6	811.5	811.5	811.5	804.1



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	921.6	937.5	934.7	927.2	921.6
115°	1044.7	1059.7	1055.0	1052.2	1044.7
117.5°	1166.9	1187.5	1174.4	1166.9	1159.5
120°	1290.1	1310.6	1290.1	1290.1	1281.7
122.5°	1402.1	1428.2	1415.1	1407.6	1402.1
125°	1519.6	1542.9	1535.5	1527.1	1524.2
127.5°	1634.3	1663.2	1652.9	1641.8	1634.3
130°	1741.6	1775.1	1770.5	1764.9	1754.6
132.5°	1861.9	1888.1	1889.9	1876.8	1869.4
135°	1965.4	1994.4	2000.0	1997.2	1989.7
137.5°	2081.1	2104.4	2109.1	2107.2	2096.1
140°	2182.8	2206.1	2219.2	2219.2	2208.9
142.5°	2287.3	2310.6	2318.1	2320.8	2310.6
145°	2386.1	2404.8	2419.7	2422.6	2412.3
147.5°	2474.8	2498.1	2509.3	2514.0	2503.7
150°	2566.2	2582.0	2592.3	2600.7	2592.3
152.5°	2647.4	2663.2	2676.3	2686.6	2676.3
155°	2728.5	2736.0	2744.4	2757.4	2749.0
157.5°	2798.5	2804.1	2808.7	2827.4	2814.3
160°	2861.0	2866.6	2869.4	2885.3	2874.0
162.5°	2918.8	2918.8	2921.6	2939.3	2926.3
165°	2968.3	2965.5	2965.5	2984.1	2971.0
167.5°	3013.0	3004.6	3004.6	3023.3	3010.2
170°	3046.6	3039.1	3036.3	3055.0	3039.1
172.5°	3069.9	3062.4	3059.7	3078.3	3062.4
175°	3088.6	3081.1	3075.5	3094.1	3078.3
177.5°	3098.9	3091.4	3085.7	3101.6	3085.7
180°	3094.1	3094.1	3094.1	3094.1	3094.1

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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	12.34	13.22	13.25	14.15	15.33	8.30	9.19	9.21	10.11	11.29
	3H	14.03	14.82	14.95	15.75	16.96	9.50	10.29	10.42	11.22	12.43
	4H	14.64	15.39	15.58	16.32	17.54	9.95	10.69	10.88	11.63	12.85
	6H	15.07	15.76	16.02	16.70	17.93	10.27	10.96	11.22	11.90	13.13
	8H	15.20	15.85	16.15	16.81	18.04	10.37	11.02	11.32	11.98	13.21
	12H	15.26	15.89	16.22	16.84	18.09	10.41	11.03	11.37	11.99	13.24
4H	2H	12.37	13.11	13.31	14.05	15.27	8.91	9.65	9.85	10.59	11.81
	3H	14.20	14.82	15.16	15.79	17.02	10.26	10.88	11.21	11.85	13.08
	4H	14.90	15.47	15.86	16.43	17.69	10.81	11.38	11.77	12.34	13.60
	6H	15.42	15.91	16.40	16.90	18.15	11.24	11.72	12.21	12.71	13.96
	8H	15.60	16.06	16.58	17.04	18.31	11.37	11.82	12.34	12.80	14.07
	12H	15.70	16.11	16.70	17.11	18.38	11.43	11.84	12.43	12.84	14.11
8H	4H	14.87	15.33	15.85	16.31	17.58	11.10	11.55	12.07	12.53	13.80
	6H	15.45	15.82	16.45	16.84	18.11	11.62	12.00	12.62	13.02	14.28
	8H	15.67	16.00	16.68	17.01	18.29	11.81	12.14	12.82	13.15	14.44
	12H	15.81	16.10	16.82	17.10	18.44	11.94	12.23	12.95	13.23	14.56
12H	4H	14.83	15.24	15.82	16.23	17.51	11.11	11.52	12.10	12.51	13.79
	6H	15.42	15.75	16.43	16.76	18.05	11.67	12.00	12.68	13.01	14.30
	8H	15.65	15.94	16.66	16.94	18.27	11.89	12.18	12.90	13.18	14.51

END OF REPORT