

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: P917744

Luminaire Tested: DFN2DIP-SQ4F0-100D120US930-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P917744
REPORT IS A COMBINATION OF REPORTS P900175 AND P896915
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-100D120US930-FLLFLL
Description: 4 foot, Square Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

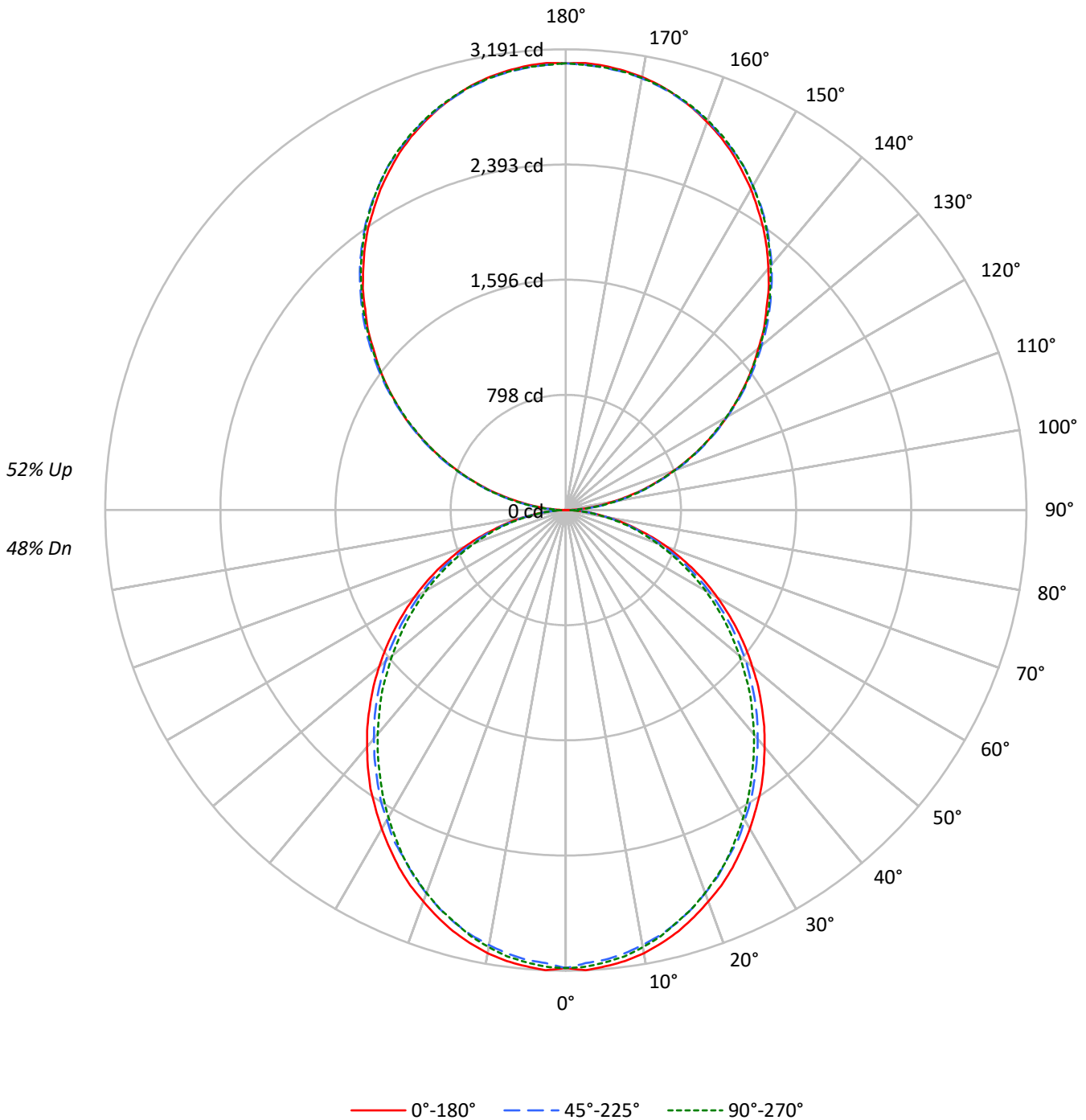
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 16729.9 lumens
Efficiency: N/A
Efficacy: 91.5 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 182.8
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9968
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			0	
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	0
RCR																					
0	107	107	107	107	98	98	98	98	82	82	82	68	68	68	55	55	55	48			48
1	97	93	89	86	89	86	82	79	72	70	68	60	58	57	48	47	46	41			41
2	89	81	75	70	81	75	70	65	63	59	56	52	50	47	42	41	39	34			34
3	81	71	64	58	74	66	60	54	56	51	47	46	43	40	38	35	33	29			29
4	74	63	55	49	68	59	52	46	50	44	40	41	37	34	34	31	28	25			25
5	68	56	48	42	62	52	45	40	44	39	35	37	33	30	30	27	25	22			22
6	63	51	42	37	57	47	40	34	40	34	30	34	29	26	27	24	22	19			19
7	58	46	38	32	53	42	35	30	36	31	27	30	26	23	25	22	19	17			17
8	54	41	34	28	49	39	32	27	33	28	24	28	24	20	23	20	17	15			15
9	50	38	30	25	46	35	28	24	30	25	21	26	21	18	21	18	16	14			14
10	47	35	27	23	43	32	26	21	28	23	19	24	20	17	20	17	14	12			12

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2226	2226	2226
5°	2230	2195	2210
10°	2211	2166	2181
15°	2179	2131	2135
20°	2135	2082	2088
25°	2091	2023	2033
30°	2036	1968	1963
35°	1984	1904	1889
40°	1920	1839	1819
45°	1857	1773	1748
50°	1787	1705	1664
55°	1714	1625	1588
60°	1632	1531	1501
65°	1542	1434	1398
70°	1427	1315	1287
75°	1268	1173	1186
80°	1077	992	990
85°	778	679	666

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°
 Vertical Angle: 90°
 Luminance: 2435 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	298.6	1.8
10°-20°	840.1	5.0
20°-30°	1234.6	7.4
30°-40°	1433.9	8.6
40°-50°	1432.1	8.6
50°-60°	1248.8	7.5
60°-70°	923.1	5.5
70°-80°	522.3	3.1
80°-90°	146.6	0.9
90°-100°	191.5	1.1
100°-110°	608.3	3.6
110°-120°	1041.1	6.2
120°-130°	1369.2	8.2
130°-140°	1536.9	9.2
140°-150°	1507.1	9.0
150°-160°	1264.2	7.6
160°-170°	838.4	5.0
170°-180°	293.0	1.8
0°-30°	2373.3	14.2
0°-40°	3807.2	22.8
0°-60°	6488.2	38.8
0°-90°	8080.2	48.3
90°-120°	1840.9	11.0
90°-150°	6254.0	37.4
90°-180°	8650.0	51.7
0°-180°	16729.9	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3172	3172	3172	3172	3172	
5°	3172	3160	3127	3151	3145	301
15°	3020	3002	2962	2974	2959	851
25°	2733	2709	2657	2663	2657	1258
35°	2358	2328	2279	2260	2245	1473
45°	1919	1898	1852	1818	1806	1481
55°	1452	1434	1397	1361	1345	1298
65°	979	961	930	903	888	968
75°	512	506	491	473	479	547
85°	125	122	119	110	107	139
90°	3	34	91	86	89	16
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°	3172.4	3172.4	3172.4	3172.4	3172.4
2.5°	3190.8	3175.6	3141.9	3172.4	3166.5
5°	3172.4	3160.4	3126.8	3151.0	3145.2
7.5°	3151.0	3132.9	3099.2	3123.8	3117.7
10°	3117.7	3096.3	3059.7	3084.0	3075.0
12.5°	3071.7	3053.6	3017.0	3032.3	3026.1
15°	3019.9	3001.8	2962.0	2974.3	2959.1
17.5°	2955.9	2937.8	2897.9	2913.1	2897.9
20°	2885.6	2867.5	2824.8	2833.8	2821.8
22.5°	2815.7	2788.2	2748.4	2748.4	2742.3
25°	2733.2	2708.9	2657.1	2662.9	2657.1
27.5°	2641.6	2620.2	2580.7	2571.7	2556.4
30°	2550.3	2525.7	2480.1	2471.0	2458.7
32.5°	2452.6	2434.5	2385.6	2367.1	2354.8
35°	2358.1	2327.7	2278.8	2260.3	2245.1
37.5°	2251.3	2223.7	2174.9	2153.5	2138.3
40°	2141.5	2116.9	2068.1	2040.9	2028.6
42.5°	2034.7	2010.1	1961.6	1930.9	1912.8
45°	1918.9	1897.5	1851.5	1818.2	1806.0
47.5°	1806.0	1784.6	1735.7	1702.0	1683.9
50°	1686.9	1671.6	1628.9	1586.2	1571.0
52.5°	1571.0	1549.6	1510.1	1476.5	1455.1
55°	1452.2	1433.8	1397.2	1360.6	1345.4
57.5°	1333.1	1317.8	1278.1	1241.5	1229.2
60°	1214.0	1202.0	1159.3	1125.6	1116.6
62.5°	1098.1	1076.8	1046.4	1015.9	1003.6
65°	979.3	960.9	930.5	902.9	887.8
67.5°	857.4	841.8	814.6	793.3	781.0
70°	744.4	732.1	704.6	683.2	671.2
72.5°	628.5	616.2	601.0	579.7	570.5
75°	512.3	506.5	491.0	472.9	479.0
77.5°	408.8	396.5	390.3	381.2	372.2
80°	305.2	302.0	295.8	286.7	280.6
82.5°	207.5	207.5	204.6	192.2	192.2
85°	124.9	122.1	119.1	109.7	106.8
87.5°	55.0	48.8	42.7	33.7	30.4
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	9.90	10.75	10.87	11.73	13.03	9.46	10.31	10.43	11.29	12.59
	3H	11.57	12.33	12.55	13.32	14.64	11.08	11.84	12.06	12.83	14.15
	4H	12.16	12.88	13.15	13.87	15.20	11.66	12.38	12.66	13.38	14.70
	6H	12.56	13.22	13.57	14.22	15.56	12.06	12.72	13.07	13.72	15.06
	8H	12.67	13.30	13.68	14.32	15.65	12.16	12.79	13.18	13.81	15.15
	12H	12.72	13.31	13.73	14.33	15.69	12.21	12.80	13.22	13.82	15.18
4H	2H	10.36	11.08	11.36	12.08	13.40	10.01	10.73	11.01	11.73	13.05
	3H	12.23	12.83	13.24	13.86	15.20	11.82	12.42	12.84	13.45	14.79
	4H	12.95	13.50	13.97	14.52	15.88	12.53	13.07	13.54	14.09	15.46
	6H	13.47	13.94	14.50	14.98	16.34	13.04	13.51	14.07	14.55	15.91
	8H	13.62	14.06	14.65	15.10	16.47	13.18	13.62	14.21	14.66	16.03
	12H	13.69	14.09	14.74	15.14	16.52	13.24	13.64	14.29	14.69	16.07
8H	4H	13.14	13.59	14.18	14.62	16.00	12.77	13.21	13.80	14.25	15.62
	6H	13.78	14.15	14.84	15.22	16.59	13.40	13.76	14.45	14.84	16.21
	8H	14.00	14.33	15.07	15.39	16.78	13.61	13.93	14.67	14.99	16.39
	12H	14.14	14.42	15.20	15.48	16.91	13.73	14.01	14.79	15.07	16.50
12H	4H	13.13	13.53	14.18	14.58	15.96	12.76	13.16	13.81	14.21	15.59
	6H	13.81	14.13	14.87	15.19	16.58	13.44	13.76	14.50	14.82	16.21
	8H	14.06	14.34	15.12	15.40	16.83	13.67	13.96	14.74	15.01	16.45