

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: P917852

Luminaire Tested: DFN2DIP-SQ4F0-140D120US930-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P917852
REPORT IS A COMBINATION OF REPORTS P900181 AND P896915
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-140D120US930-FLLFLL
Description: 4 foot, Square Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

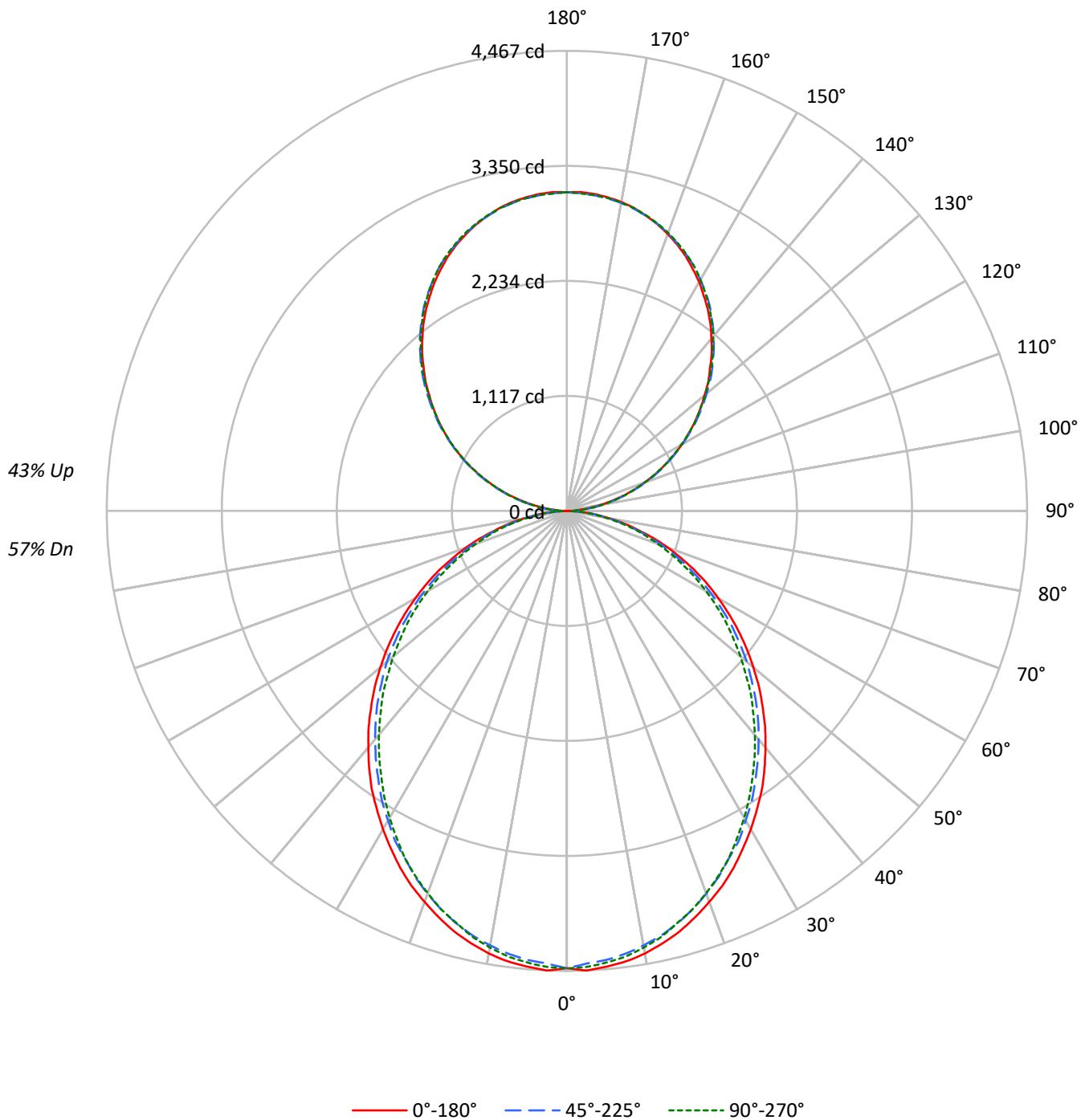
Lumens per Lamp: N/A
Luminaire Lumens: 19958.5 lumens
Efficiency: N/A
Efficacy: 85.3 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 233.9
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9789
Total Harmonic Distortion (THDi): 0.074
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	99	95	91	87	92	88	85	82	76	74	72	65	63	62	55	54	53
2	90	83	77	71	84	77	72	67	67	63	59	57	54	52	48	46	44
3	82	73	65	60	76	68	62	56	59	54	50	51	47	44	43	40	38
4	75	65	57	50	70	60	53	48	53	47	43	45	41	37	38	35	33
5	69	58	49	43	64	54	47	41	47	41	37	41	36	32	35	31	28
6	64	52	43	38	59	48	41	36	42	36	32	37	32	28	31	28	25
7	59	47	39	33	55	44	37	31	38	33	28	33	29	25	29	25	22
8	55	42	35	29	51	40	33	28	35	29	25	31	26	23	26	23	20
9	51	39	31	26	48	37	30	25	32	27	23	28	24	20	24	21	18
10	48	36	28	23	45	34	27	22	30	24	20	26	22	18	23	19	16

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3116	3116	3116
5°	3121	3074	3095
10°	3096	3033	3053
15°	3050	2983	2989
20°	2989	2915	2923
25°	2928	2832	2846
30°	2851	2756	2748
35°	2778	2665	2645
40°	2689	2574	2547
45°	2599	2483	2446
50°	2502	2387	2330
55°	2400	2276	2223
60°	2284	2144	2101
65°	2158	2007	1956
70°	1998	1841	1801
75°	1775	1642	1660
80°	1508	1389	1386
85°	1090	950	932

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2599 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	418.0	2.1
10°-20°	1176.1	5.9
20°-30°	1728.5	8.7
30°-40°	2007.5	10.1
40°-50°	2005.0	10.0
50°-60°	1748.3	8.8
60°-70°	1292.4	6.5
70°-80°	731.2	3.7
80°-90°	201.8	1.0
90°-100°	191.5	1.0
100°-110°	608.3	3.0
110°-120°	1041.1	5.2
120°-130°	1369.2	6.9
130°-140°	1536.9	7.7
140°-150°	1507.1	7.6
150°-160°	1264.2	6.3
160°-170°	838.4	4.2
170°-180°	293.0	1.5
0°-30°	3322.6	16.6
0°-40°	5330.1	26.7
0°-60°	9083.5	45.5
0°-90°	11308.8	56.7
90°-120°	1840.9	9.2
90°-150°	6254.0	31.3
90°-180°	8650.0	43.3
0°-180°	19958.5	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4441	4441	4441	4441	4441	
5°	4441	4424	4377	4411	4403	422
15°	4228	4202	4147	4164	4143	1191
25°	3826	3792	3720	3728	3720	1761
35°	3301	3259	3190	3164	3143	2062
45°	2686	2657	2592	2546	2528	2073
55°	2033	2007	1956	1905	1884	1818
65°	1371	1345	1303	1264	1243	1356
75°	717	709	687	662	671	766
85°	175	171	167	154	150	195
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°	4441.3	4441.3	4441.3	4441.3	4441.3
2.5°	4467.1	4445.8	4398.7	4441.3	4433.2
5°	4441.3	4424.5	4377.4	4411.4	4403.3
7.5°	4411.4	4386.1	4338.9	4373.3	4364.7
10°	4364.7	4334.9	4283.7	4317.7	4304.9
12.5°	4300.4	4275.0	4223.8	4245.1	4236.5
15°	4227.9	4202.5	4146.8	4164.1	4142.7
17.5°	4138.2	4112.9	4057.1	4078.4	4057.1
20°	4039.9	4014.5	3954.7	3967.4	3950.6
22.5°	3942.0	3903.5	3847.7	3847.7	3839.2
25°	3826.4	3792.4	3720.0	3728.1	3720.0
27.5°	3698.2	3668.4	3613.1	3600.4	3579.1
30°	3570.4	3536.0	3472.1	3459.5	3442.2
32.5°	3433.6	3408.3	3339.8	3314.0	3296.7
35°	3301.3	3258.7	3190.3	3164.5	3143.1
37.5°	3151.8	3113.3	3044.8	3015.0	2993.6
40°	2998.2	2963.8	2895.3	2857.3	2840.0
42.5°	2848.7	2814.2	2746.3	2703.2	2677.8
45°	2686.4	2656.6	2592.2	2545.5	2528.3
47.5°	2528.3	2498.4	2430.0	2382.9	2357.5
50°	2361.6	2340.3	2280.5	2220.6	2199.3
52.5°	2199.3	2169.4	2114.1	2067.0	2037.2
55°	2033.1	2007.3	1956.1	1904.9	1883.6
57.5°	1866.3	1845.0	1789.3	1738.1	1720.9
60°	1699.6	1682.9	1623.0	1575.9	1563.2
62.5°	1537.4	1507.5	1464.8	1422.3	1405.1
65°	1371.1	1345.2	1302.7	1264.1	1242.8
67.5°	1200.3	1178.5	1140.4	1110.5	1093.3
70°	1042.1	1024.9	986.4	956.5	939.7
72.5°	880.0	862.7	841.4	811.5	798.8
75°	717.3	709.1	687.4	662.0	670.6
77.5°	572.3	555.1	546.4	533.8	521.1
80°	427.3	422.7	414.2	401.5	392.8
82.5°	290.4	290.4	286.3	269.1	269.1
85°	174.9	170.8	166.7	153.6	149.5
87.5°	77.0	68.4	59.8	47.1	42.6
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	11.83	12.75	12.72	13.67	14.84	11.38	12.31	12.28	13.22	14.40
	3H	13.50	14.33	14.41	15.25	16.45	13.00	13.83	13.91	14.76	15.96
	4H	14.09	14.87	15.01	15.81	17.01	13.59	14.38	14.52	15.31	16.52
	6H	14.50	15.22	15.43	16.16	17.38	14.00	14.72	14.93	15.66	16.88
	8H	14.60	15.29	15.55	16.25	17.47	14.10	14.79	15.05	15.75	16.96
	12H	14.66	15.31	15.61	16.26	17.51	14.15	14.80	15.10	15.75	17.00
4H	2H	12.30	13.08	13.23	14.01	15.22	11.94	12.73	12.87	13.66	14.86
	3H	14.17	14.83	15.11	15.79	17.01	13.76	14.42	14.70	15.38	16.60
	4H	14.89	15.49	15.84	16.45	17.69	14.47	15.07	15.42	16.02	17.27
	6H	15.41	15.93	16.38	16.91	18.16	14.98	15.50	15.95	16.48	17.73
	8H	15.57	16.05	16.53	17.02	18.28	15.13	15.61	16.10	16.59	17.85
	12H	15.65	16.08	16.63	17.07	18.34	15.20	15.63	16.18	16.62	17.89
8H	4H	15.09	15.58	16.06	16.55	17.81	14.72	15.20	15.68	16.17	17.43
	6H	15.73	16.13	16.72	17.15	18.41	15.35	15.75	16.34	16.76	18.02
	8H	15.96	16.31	16.96	17.31	18.59	15.56	15.92	16.56	16.92	18.20
	12H	16.09	16.40	17.10	17.40	18.73	15.68	15.99	16.69	16.99	18.31
12H	4H	15.08	15.52	16.07	16.51	17.77	14.71	15.15	15.70	16.14	17.41
	6H	15.76	16.12	16.76	17.12	18.40	15.39	15.74	16.39	16.75	18.03
	8H	16.01	16.32	17.02	17.32	18.64	15.63	15.94	16.64	16.94	18.26

END OF REPORT