

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: P906921

Luminaire Tested: DFN2DIP-SQ4F0-140D070US835-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P906921
REPORT IS A COMBINATION OF REPORTS P901611 AND P898471
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-140D070US835-FLLONL
Description: 4 foot, Square Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

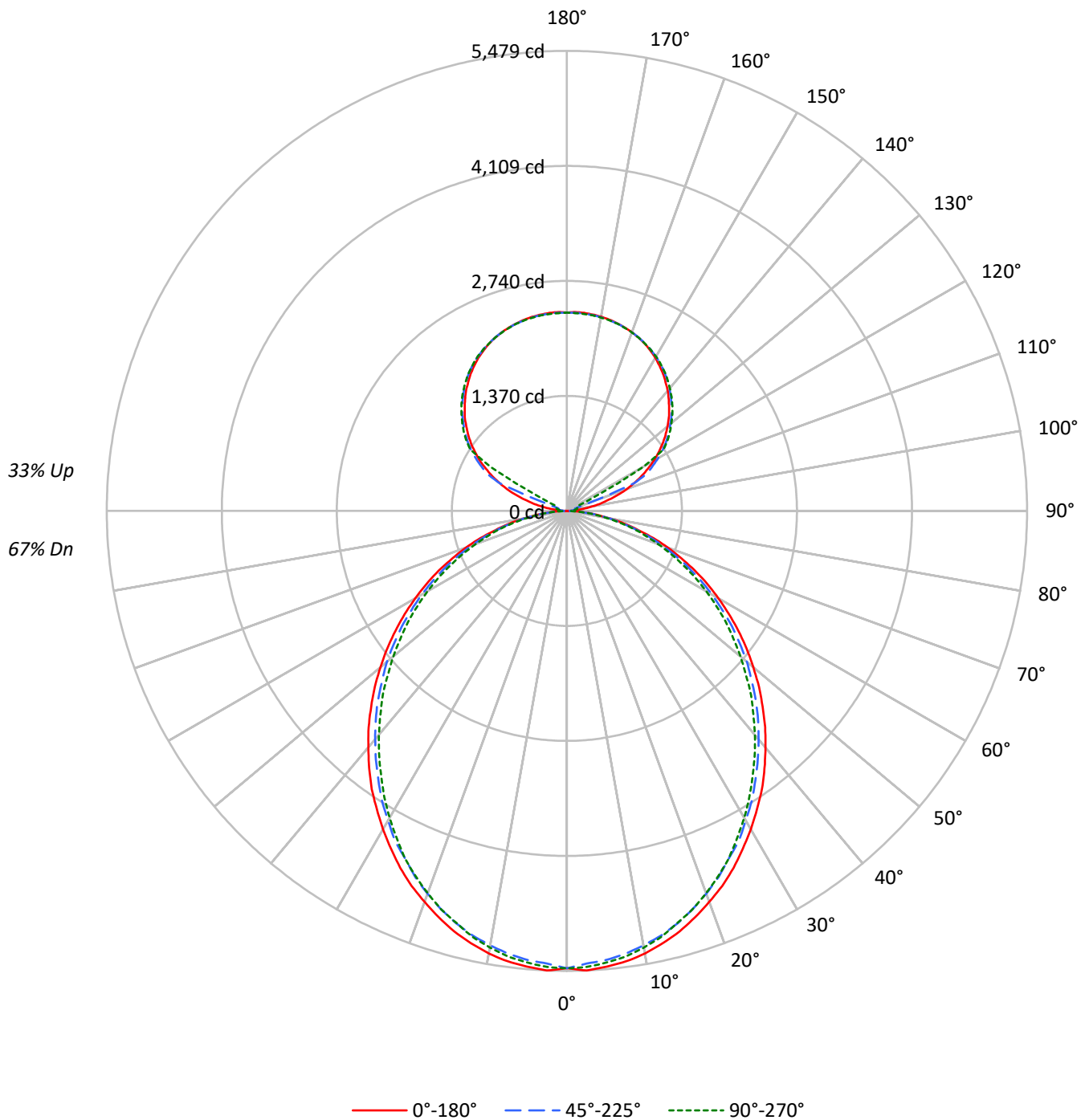
Lumens per Lamp: N/A
Luminaire Lumens: 20790.0 lumens
Efficiency: N/A
Efficacy: 106.1 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 196
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	111	111	111	111	105	105	105	105	93	93	93	82	82	82	71	71	71
1	102	97	93	90	95	92	88	85	81	79	76	72	70	68	63	62	60
2	92	85	79	73	87	80	75	70	71	67	63	63	60	57	56	53	51
3	84	75	67	61	79	71	64	58	63	58	53	56	52	48	49	46	43
4	77	66	58	52	72	63	55	50	56	50	45	50	45	41	44	40	37
5	71	59	51	44	67	56	48	43	50	44	39	45	40	36	40	36	33
6	66	53	45	39	62	50	43	37	45	39	34	41	35	32	36	32	29
7	61	48	40	34	57	46	38	33	41	35	30	37	32	28	33	29	26
8	56	44	36	30	53	42	34	29	38	31	27	34	29	25	30	26	23
9	53	40	32	27	50	38	31	26	35	29	24	31	26	23	28	24	21
10	49	37	29	24	46	35	28	24	32	26	22	29	24	20	26	22	19

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3822	3822	3822
5°	3828	3770	3796
10°	3797	3720	3745
15°	3741	3659	3666
20°	3666	3575	3585
25°	3591	3474	3491
30°	3497	3380	3371
35°	3408	3269	3244
40°	3298	3157	3124
45°	3188	3045	3001
50°	3069	2927	2858
55°	2943	2791	2727
60°	2802	2629	2577
65°	2647	2462	2400
70°	2450	2258	2210
75°	2178	2014	2036
80°	1850	1704	1701
85°	1337	1165	1143

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
Vertical Angle: 45°
Luminance: 3188 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	512.7	2.5
10°-20°	1442.6	6.9
20°-30°	2120.0	10.2
30°-40°	2462.3	11.8
40°-50°	2459.3	11.8
50°-60°	2144.4	10.3
60°-70°	1585.2	7.6
70°-80°	896.9	4.3
80°-90°	240.9	1.2
90°-100°	77.9	0.4
100°-110°	290.4	1.4
110°-120°	770.2	3.7
120°-130°	1277.4	6.1
130°-140°	1356.9	6.5
140°-150°	1261.1	6.1
150°-160°	1013.9	4.9
160°-170°	653.3	3.1
170°-180°	224.9	1.1
0°-30°	4075.3	19.6
0°-40°	6537.6	31.4
0°-60°	11141.3	53.6
0°-90°	13864.2	66.7
90°-120°	1138.5	5.5
90°-150°	5033.8	24.2
90°-180°	6926.0	33.3
0°-180°	20790.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	5448	5448	5448	5448	5448	
5°	5448	5427	5369	5411	5401	517
15°	5186	5155	5086	5107	5081	1461
25°	4693	4652	4563	4573	4563	2160
35°	4049	3997	3913	3881	3855	2529
45°	3295	3258	3180	3122	3101	2543
55°	2494	2462	2399	2336	2310	2229
65°	1682	1650	1598	1550	1524	1663
75°	880	870	843	812	822	939
85°	214	210	204	188	183	239
90°	2	20	34	43	46	19
95°	111	55	67	75	74	131
105°	520	571	104	123	130	555
115°	983	1012	1055	263	140	968
125°	1390	1412	1444	1456	1462	1239
135°	1720	1747	1762	1780	1776	1328
145°	1995	1993	2022	2034	2026	1248
155°	2197	2181	2202	2212	2198	1012
165°	2314	2304	2309	2321	2309	654
175°	2368	2356	2359	2371	2354	225
180°	2362	2362	2362	2362	2362	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	5447.5	5447.5	5447.5	5447.5	5447.5
2.5°	5479.1	5453.0	5395.2	5447.5	5437.5
5°	5447.5	5426.9	5369.1	5410.8	5400.8
7.5°	5410.8	5379.7	5321.9	5364.1	5353.5
10°	5353.5	5316.9	5254.1	5295.8	5280.2
12.5°	5274.6	5243.5	5180.7	5206.8	5196.3
15°	5185.7	5154.6	5086.2	5107.4	5081.2
17.5°	5075.7	5044.6	4976.2	5002.3	4976.2
20°	4955.1	4924.0	4850.6	4866.2	4845.6
22.5°	4835.0	4787.8	4719.4	4719.4	4708.9
25°	4693.3	4651.6	4562.7	4572.7	4562.7
27.5°	4536.0	4499.4	4431.6	4416.0	4389.9
30°	4379.3	4337.1	4258.7	4243.2	4222.0
32.5°	4211.5	4180.4	4096.4	4064.8	4043.6
35°	4049.2	3997.0	3913.0	3881.4	3855.2
37.5°	3865.8	3818.6	3734.6	3698.0	3671.8
40°	3677.4	3635.2	3551.2	3504.6	3483.4
42.5°	3494.0	3451.8	3368.4	3315.6	3284.5
45°	3295.0	3258.4	3179.5	3122.2	3101.1
47.5°	3101.1	3064.4	2980.5	2922.7	2891.6
50°	2896.6	2870.5	2797.1	2723.7	2697.6
52.5°	2697.6	2660.9	2593.1	2535.3	2498.7
55°	2493.7	2462.0	2399.2	2336.4	2310.3
57.5°	2289.1	2263.0	2194.7	2131.9	2110.7
60°	2084.6	2064.1	1990.7	1932.9	1917.3
62.5°	1885.7	1849.0	1796.7	1744.5	1723.4
65°	1681.7	1650.0	1597.8	1550.5	1524.4
67.5°	1472.2	1445.5	1398.8	1362.1	1341.0
70°	1278.2	1257.1	1209.9	1173.2	1152.6
72.5°	1079.3	1058.1	1032.0	995.4	979.8
75°	879.8	869.8	843.1	812.0	822.5
77.5°	701.9	680.8	670.2	654.7	639.1
80°	524.1	518.5	508.0	492.4	481.8
82.5°	356.2	356.2	351.2	330.1	330.1
85°	214.5	209.5	204.5	188.4	183.4
87.5°	94.5	83.9	73.4	57.8	52.2
90°	1.6	20.5	34.1	42.8	46.1
92.5°	42.8	35.9	41.0	44.5	46.1
95°	111.0	54.6	66.6	75.3	73.5
97.5°	199.9	59.9	87.1	92.4	94.0
100°	302.7	68.4	97.4	111.0	114.5
102.5°	415.3	412.1	100.9	119.6	124.8
105°	519.7	571.0	104.3	123.0	129.9
107.5°	641.0	683.7	107.8	126.5	133.4
110°	757.4	793.1	299.2	128.3	135.0

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	866.8	897.4	868.4	131.5	136.8
115°	982.9	1011.9	1054.7	263.3	140.3
117.5°	1083.8	1117.9	1147.1	902.5	454.7
120°	1196.6	1222.2	1253.1	1273.6	1042.8
122.5°	1292.2	1319.6	1354.0	1364.1	1365.9
125°	1389.7	1412.0	1444.5	1456.5	1461.5
127.5°	1478.6	1502.5	1528.3	1545.4	1547.0
130°	1562.4	1589.8	1608.5	1627.4	1625.8
132.5°	1647.9	1670.2	1688.9	1704.3	1702.7
135°	1719.7	1747.1	1762.4	1779.6	1776.2
137.5°	1794.8	1815.4	1832.6	1849.7	1844.6
140°	1868.3	1882.1	1900.8	1916.2	1907.7
142.5°	1930.0	1942.0	1964.1	1977.7	1969.2
145°	1995.0	1993.2	2022.2	2034.2	2025.7
147.5°	2051.2	2046.2	2075.2	2083.7	2077.0
150°	2106.0	2094.1	2121.5	2131.6	2123.1
152.5°	2152.1	2138.5	2164.1	2174.4	2162.5
155°	2196.6	2181.3	2201.8	2212.0	2198.4
157.5°	2232.5	2218.9	2234.3	2246.3	2232.5
160°	2263.4	2253.0	2263.4	2273.5	2261.5
162.5°	2290.6	2280.4	2288.9	2300.9	2285.5
165°	2314.5	2304.4	2309.4	2321.4	2309.4
167.5°	2333.4	2323.0	2328.3	2340.3	2324.9
170°	2348.8	2338.5	2341.9	2353.9	2338.5
172.5°	2359.0	2348.8	2352.3	2364.2	2348.8
175°	2367.5	2355.5	2359.0	2370.9	2353.9
177.5°	2370.9	2359.0	2360.8	2372.8	2357.3
180°	2362.4	2362.4	2362.4	2362.4	2362.4

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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	13.36	14.39	14.16	15.21	16.22	12.91	13.95	13.71	14.77	15.78
	3H	15.03	15.96	15.85	16.79	17.83	14.54	15.47	15.36	16.30	17.34
	4H	15.63	16.51	16.46	17.35	18.40	15.14	16.01	15.97	16.85	17.91
	6H	16.04	16.85	16.89	17.70	18.77	15.54	16.35	16.39	17.20	18.26
	8H	16.16	16.93	17.01	17.79	18.86	15.65	16.42	16.50	17.29	18.36
	12H	16.21	16.95	17.07	17.81	18.90	15.70	16.44	16.56	17.30	18.39
4H	2H	13.84	14.72	14.67	15.55	16.61	13.48	14.36	14.32	15.20	16.25
	3H	15.72	16.46	16.57	17.33	18.40	15.32	16.05	16.16	16.92	17.99
	4H	16.45	17.12	17.31	17.99	19.08	16.03	16.69	16.88	17.56	18.66
	6H	16.98	17.56	17.85	18.45	19.55	16.55	17.12	17.42	18.02	19.11
	8H	17.13	17.67	18.01	18.56	19.67	16.70	17.24	17.57	18.13	19.24
	12H	17.22	17.70	18.12	18.61	19.73	16.77	17.25	17.67	18.16	19.28
8H	4H	16.66	17.20	17.54	18.09	19.20	16.28	16.82	17.16	17.71	18.82
	6H	17.30	17.75	18.21	18.68	19.79	16.92	17.37	17.82	18.30	19.41
	8H	17.53	17.92	18.44	18.85	19.98	17.14	17.53	18.05	18.46	19.58
	12H	17.67	18.02	18.59	18.94	20.11	17.26	17.61	18.18	18.52	19.70
12H	4H	16.65	17.14	17.55	18.05	19.16	16.29	16.77	17.18	17.68	18.80
	6H	17.33	17.73	18.25	18.66	19.78	16.96	17.36	17.88	18.28	19.41
	8H	17.59	17.94	18.51	18.85	20.03	17.21	17.56	18.13	18.47	19.65