

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: P915120

Luminaire Tested: DFN2DIP-SQ4F0-140D110US927-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P915120
REPORT IS A COMBINATION OF REPORTS P900163 AND P896915
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-140D110US927-FLLFLL
Description: 4 foot, Square Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

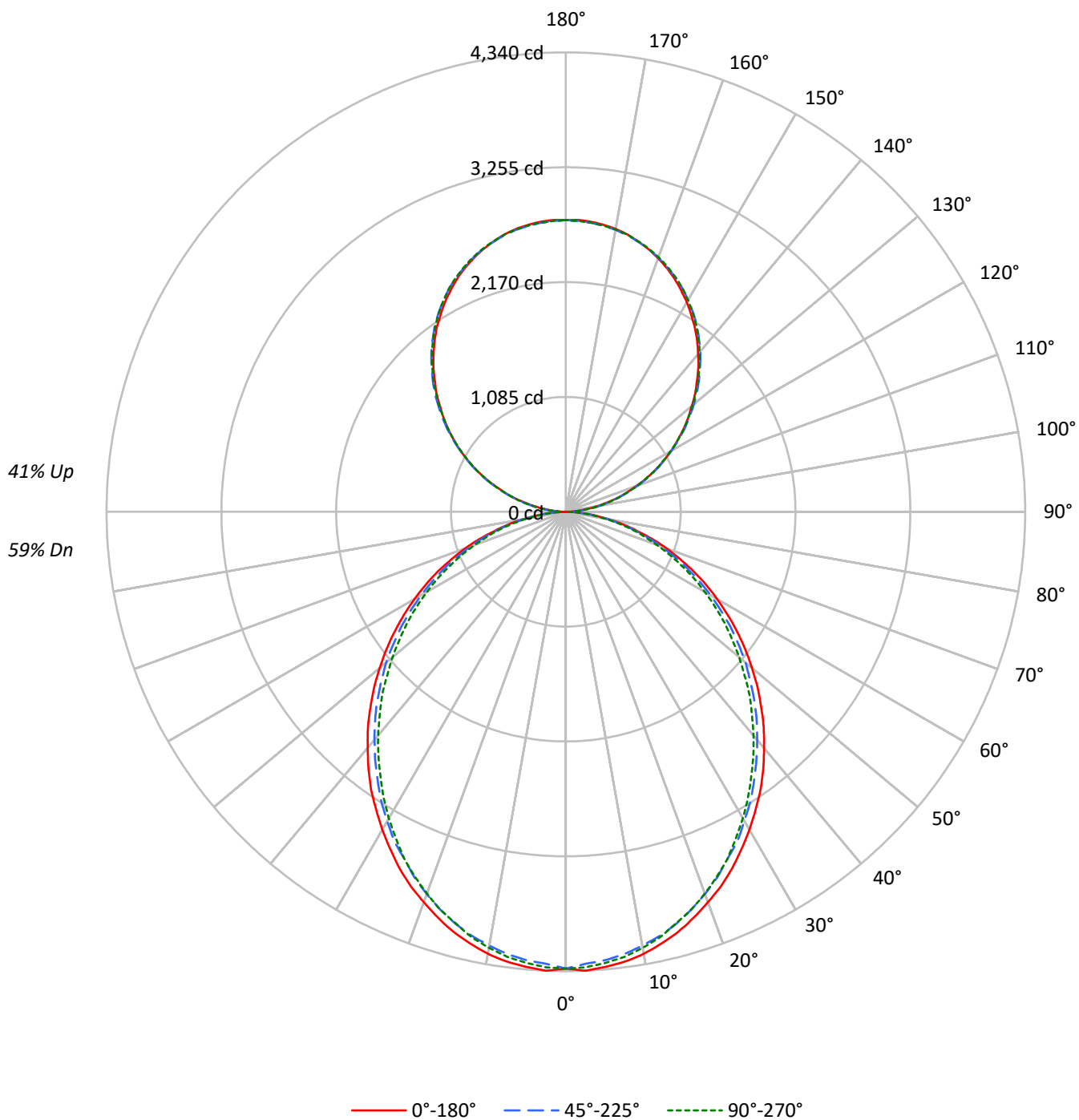
Lumens per Lamp: N/A
Luminaire Lumens: 18691.5 lumens
Efficiency: N/A
Efficacy: 82.5 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 226.6
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
RCR																	
0	109	109	109	109	102	102	102	102	88	88	88		76	76	76		64
1	100	95	91	88	93	89	86	83	77	75	73		67	65	63		57
2	91	83	77	72	84	78	72	68	68	64	60		59	55	53		50
3	83	73	66	60	77	69	62	57	60	55	51		52	48	45		44
4	76	65	57	51	70	61	54	48	53	48	43		46	42	38		40
5	70	58	50	44	65	54	47	41	48	42	37		41	37	33		36
6	64	52	44	38	60	49	41	36	43	37	33		38	33	29		32
7	59	47	39	33	55	44	37	32	39	33	29		34	29	26		30
8	55	43	35	29	51	40	33	28	36	30	26		31	27	23		27
9	51	39	31	26	48	37	30	25	33	27	23		29	24	21		25
10	48	36	29	24	45	34	27	23	30	25	21		27	22	19		23

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3028	3028	3028
5°	3033	2986	3007
10°	3008	2947	2967
15°	2964	2899	2904
20°	2904	2832	2840
25°	2845	2752	2765
30°	2770	2678	2671
35°	2699	2590	2570
40°	2612	2501	2475
45°	2526	2412	2377
50°	2431	2319	2264
55°	2332	2211	2160
60°	2219	2083	2041
65°	2097	1950	1901
70°	1941	1789	1750
75°	1725	1596	1613
80°	1466	1350	1347
85°	1059	923	906

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2526 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	406.2	2.2
10°-20°	1142.8	6.1
20°-30°	1679.5	9.0
30°-40°	1950.6	10.4
40°-50°	1948.2	10.4
50°-60°	1698.7	9.1
60°-70°	1255.7	6.7
70°-80°	710.5	3.8
80°-90°	195.3	1.0
90°-100°	170.5	0.9
100°-110°	541.8	2.9
110°-120°	927.3	5.0
120°-130°	1219.5	6.5
130°-140°	1368.8	7.3
140°-150°	1342.3	7.2
150°-160°	1126.0	6.0
160°-170°	746.7	4.0
170°-180°	261.0	1.4
0°-30°	3228.4	17.3
0°-40°	5179.0	27.7
0°-60°	8825.9	47.2
0°-90°	10987.5	58.8
90°-120°	1639.7	8.8
90°-150°	5570.3	29.8
90°-180°	7704.0	41.2
0°-180°	18691.5	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4315	4315	4315	4315	4315	
5°	4315	4299	4253	4286	4278	410
15°	4108	4083	4029	4046	4025	1157
25°	3718	3685	3614	3622	3614	1711
35°	3208	3166	3100	3075	3054	2003
45°	2610	2581	2519	2473	2457	2014
55°	1976	1950	1901	1851	1830	1766
65°	1332	1307	1266	1228	1208	1317
75°	697	689	668	643	652	744
85°	170	166	162	149	145	190
90°	2	30	81	76	79	18
95°	121	145	149	149	145	135
105°	500	507	512	516	516	528
115°	931	944	940	937	931	920
125°	1353	1374	1368	1360	1358	1209
135°	1751	1776	1781	1779	1772	1353
145°	2125	2142	2155	2158	2149	1328
155°	2430	2437	2444	2456	2448	1119
165°	2644	2641	2641	2658	2646	746
175°	2751	2744	2739	2756	2742	261
180°	2756	2756	2756	2756	2756	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	4315.4	4315.4	4315.4	4315.4	4315.4
2.5°	4340.4	4319.8	4274.0	4315.4	4307.5
5°	4315.4	4299.1	4253.3	4286.3	4278.4
7.5°	4286.3	4261.7	4215.9	4249.3	4240.9
10°	4240.9	4211.9	4162.2	4195.2	4182.9
12.5°	4178.4	4153.8	4104.1	4124.7	4116.4
15°	4108.0	4083.4	4029.2	4046.0	4025.2
17.5°	4020.9	3996.2	3942.1	3962.7	3942.1
20°	3925.3	3900.7	3842.6	3854.9	3838.6
22.5°	3830.2	3792.8	3738.6	3738.6	3730.3
25°	3717.9	3684.9	3614.5	3622.4	3614.5
27.5°	3593.3	3564.3	3510.6	3498.3	3477.6
30°	3469.2	3435.8	3373.7	3361.4	3344.6
32.5°	3336.3	3311.6	3245.1	3220.1	3203.3
35°	3207.7	3166.3	3099.8	3074.8	3054.0
37.5°	3062.4	3025.0	2958.5	2929.5	2908.7
40°	2913.2	2879.7	2813.2	2776.3	2759.5
42.5°	2767.9	2734.5	2668.4	2626.6	2601.9
45°	2610.2	2581.2	2518.7	2473.3	2456.6
47.5°	2456.6	2427.6	2361.1	2315.3	2290.7
50°	2294.6	2274.0	2215.8	2157.7	2137.0
52.5°	2137.0	2107.9	2054.2	2008.4	1979.4
55°	1975.5	1950.4	1900.6	1850.9	1830.2
57.5°	1813.4	1792.7	1738.6	1688.9	1672.1
60°	1651.4	1635.1	1577.0	1531.2	1518.8
62.5°	1493.8	1464.7	1423.3	1382.0	1365.2
65°	1332.2	1307.1	1265.7	1228.3	1207.6
67.5°	1166.2	1145.1	1108.1	1079.0	1062.3
70°	1012.6	995.9	958.5	929.4	913.1
72.5°	855.0	838.2	817.5	788.5	776.2
75°	697.0	689.0	667.9	643.3	651.6
77.5°	556.0	539.3	530.9	518.6	506.3
80°	415.2	410.7	402.4	390.1	381.7
82.5°	282.2	282.2	278.2	261.5	261.5
85°	169.9	166.0	162.0	149.2	145.3
87.5°	74.9	66.5	58.1	45.8	41.4
90°	2.5	29.9	81.4	76.4	78.9
92.5°	51.5	69.8	72.2	74.8	74.8
95°	121.3	144.6	148.7	148.7	144.6
97.5°	201.9	223.5	232.7	232.7	232.7
100°	294.9	314.0	320.7	320.7	318.2
102.5°	393.0	407.1	416.3	418.7	416.3
105°	500.2	506.8	511.8	515.9	515.9
107.5°	606.5	616.5	616.5	618.1	606.5
110°	709.6	722.9	722.9	722.9	716.2

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	820.9	835.0	832.5	825.8	820.9
115°	930.6	943.8	939.7	937.2	930.6
117.5°	1039.4	1057.6	1046.0	1039.4	1032.8
120°	1149.1	1167.4	1149.1	1149.1	1141.6
122.5°	1248.8	1272.0	1260.4	1253.7	1248.8
125°	1353.4	1374.2	1367.5	1360.1	1357.6
127.5°	1455.6	1481.4	1472.3	1462.3	1455.6
130°	1551.2	1581.1	1576.9	1571.9	1562.8
132.5°	1658.4	1681.6	1683.3	1671.7	1665.0
135°	1750.6	1776.3	1781.3	1778.8	1772.2
137.5°	1853.6	1874.4	1878.5	1876.8	1866.9
140°	1944.2	1964.9	1976.6	1976.6	1967.5
142.5°	2037.3	2058.0	2064.7	2067.1	2058.0
145°	2125.3	2141.9	2155.2	2157.7	2148.6
147.5°	2204.2	2225.0	2235.0	2239.1	2230.0
150°	2285.7	2299.8	2308.9	2316.4	2308.9
152.5°	2357.9	2372.0	2383.7	2392.9	2383.7
155°	2430.3	2436.8	2444.4	2456.0	2448.5
157.5°	2492.5	2497.5	2501.6	2518.3	2506.6
160°	2548.2	2553.2	2555.7	2569.8	2559.9
162.5°	2599.7	2599.7	2602.2	2618.0	2606.4
165°	2643.7	2641.2	2641.2	2657.8	2646.2
167.5°	2683.6	2676.1	2676.1	2692.8	2681.1
170°	2713.5	2706.9	2704.4	2721.0	2706.9
172.5°	2734.3	2727.6	2725.2	2741.8	2727.6
175°	2750.9	2744.3	2739.3	2755.9	2741.8
177.5°	2760.0	2753.4	2748.4	2762.6	2748.4
180°	2755.9	2755.9	2755.9	2755.9	2755.9

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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	11.91	12.85	12.78	13.75	14.89	11.46	12.41	12.34	13.31	14.45
	3H	13.58	14.43	14.47	15.33	16.50	13.09	13.94	13.98	14.84	16.01
	4H	14.17	14.97	15.08	15.89	17.06	13.68	14.48	14.58	15.39	16.57
	6H	14.58	15.32	15.50	16.24	17.43	14.08	14.82	15.00	15.74	16.93
	8H	14.69	15.39	15.61	16.33	17.52	14.19	14.89	15.11	15.83	17.02
	12H	14.74	15.41	15.67	16.34	17.56	14.23	14.90	15.16	15.83	17.05
4H	2H	12.38	13.18	13.29	14.09	15.27	12.02	12.83	12.93	13.74	14.92
	3H	14.26	14.93	15.18	15.87	17.06	13.85	14.52	14.77	15.46	16.65
	4H	14.98	15.59	15.91	16.53	17.74	14.55	15.17	15.49	16.11	17.32
	6H	15.50	16.03	16.45	16.99	18.21	15.07	15.60	16.01	16.56	17.78
	8H	15.66	16.15	16.60	17.11	18.34	15.22	15.71	16.17	16.67	17.90
	12H	15.73	16.18	16.70	17.15	18.39	15.29	15.73	16.25	16.71	17.94
8H	4H	15.18	15.67	16.13	16.63	17.86	14.80	15.30	15.75	16.26	17.49
	6H	15.82	16.23	16.79	17.23	18.46	15.44	15.85	16.41	16.85	18.07
	8H	16.05	16.41	17.03	17.39	18.64	15.65	16.01	16.64	17.00	18.25
	12H	16.18	16.50	17.17	17.48	18.78	15.77	16.09	16.76	17.07	18.37
12H	4H	15.17	15.62	16.14	16.59	17.83	14.80	15.25	15.77	16.22	17.46
	6H	15.85	16.21	16.83	17.20	18.45	15.48	15.84	16.46	16.83	18.08
	8H	16.10	16.42	17.09	17.40	18.69	15.72	16.04	16.71	17.02	18.31