

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: P920577

Luminaire Tested: DFN2DIP-SQ4F0-140D110US935-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P920577
REPORT IS A COMBINATION OF REPORTS P901683 AND P898471
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-140D110US935-FLLONL
Description: 4 foot, Square Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

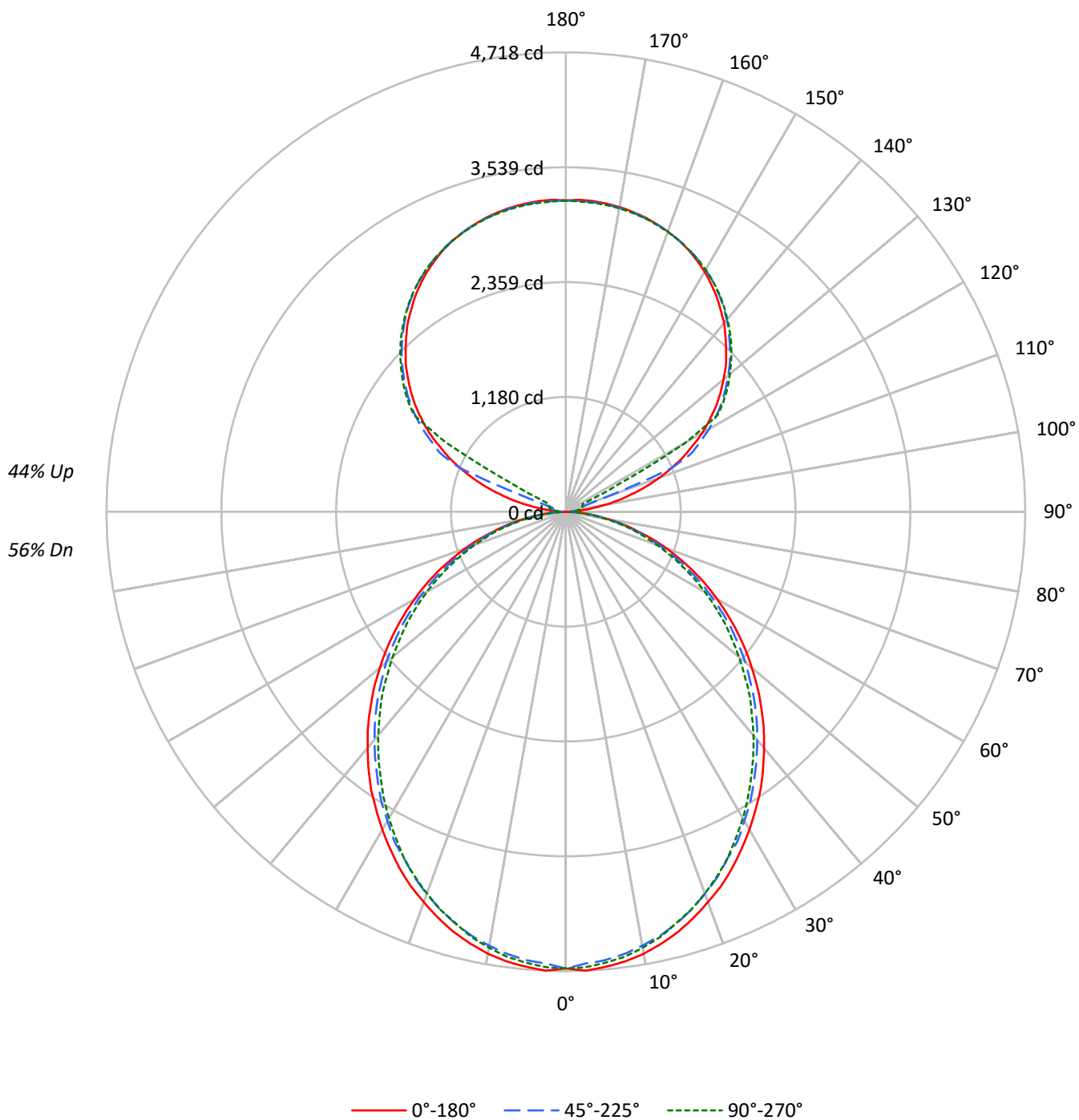
Lumens per Lamp: N/A
Luminaire Lumens: 21309.7 lumens
Efficiency: N/A
Efficacy: 94.0 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: General Diffuse

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	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	71		65	63	61		55	53	52
2	90	83	77	71		84	77	72	67		67	63	59		57	54	51		48	46	44
3	82	73	65	59		76	68	61	56		59	54	50		50	47	43		43	40	37
4	75	64	56	50		70	60	53	48		52	47	42		45	41	37		38	35	32
5	69	57	49	43		64	54	46	41		47	41	37		40	36	32		34	31	28
6	64	52	43	38		59	48	41	36		42	36	32		36	32	28		31	28	25
7	59	47	39	33		55	44	36	31		38	32	28		33	29	25		28	25	22
8	55	42	35	29		51	40	33	28		35	29	25		30	26	22		26	22	20
9	51	39	31	26		47	36	30	25		32	26	22		28	23	20		24	21	18
10	48	36	28	23		44	34	27	22		30	24	20		26	21	18		22	19	16

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3291	3291	3291
5°	3296	3246	3268
10°	3269	3203	3225
15°	3221	3151	3156
20°	3156	3078	3087
25°	3092	2991	3006
30°	3011	2910	2902
35°	2934	2815	2793
40°	2839	2718	2690
45°	2745	2622	2584
50°	2642	2520	2461
55°	2534	2403	2348
60°	2412	2264	2219
65°	2279	2120	2066
70°	2110	1944	1903
75°	1875	1734	1753
80°	1593	1467	1464
85°	1151	1004	984

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2745 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	441.4	2.1
10°-20°	1242.1	5.8
20°-30°	1825.4	8.6
30°-40°	2120.0	9.9
40°-50°	2117.4	9.9
50°-60°	1846.3	8.7
60°-70°	1364.8	6.4
70°-80°	772.2	3.6
80°-90°	209.4	1.0
90°-100°	105.4	0.5
100°-110°	392.9	1.8
110°-120°	1042.0	4.9
120°-130°	1728.3	8.1
130°-140°	1835.9	8.6
140°-150°	1706.2	8.0
150°-160°	1371.8	6.4
160°-170°	883.9	4.1
170°-180°	304.2	1.4
0°-30°	3508.9	16.5
0°-40°	5628.9	26.4
0°-60°	9592.6	45.0
0°-90°	11939.1	56.0
90°-120°	1540.3	7.2
90°-150°	6810.7	32.0
90°-180°	9371.0	44.0
0°-180°	21309.7	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4690	4690	4690	4690	4690	
5°	4690	4672	4623	4659	4650	445
15°	4465	4438	4379	4398	4375	1257
25°	4041	4005	3928	3937	3928	1859
35°	3486	3441	3369	3342	3319	2177
45°	2837	2806	2738	2688	2670	2189
55°	2147	2120	2066	2012	1989	1920
65°	1448	1421	1376	1335	1312	1432
75°	758	749	726	699	708	809
85°	185	180	176	162	158	206
90°	2	28	46	58	62	20
95°	150	74	90	102	99	178
105°	703	773	141	166	176	751
115°	1330	1369	1427	356	190	1309
125°	1880	1910	1954	1971	1978	1677
135°	2327	2364	2384	2408	2403	1797
145°	2699	2697	2736	2752	2741	1688
155°	2972	2951	2979	2993	2974	1370
165°	3132	3118	3125	3141	3125	885
175°	3203	3187	3192	3208	3185	305
180°	3196	3196	3196	3196	3196	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	4690.3	4690.3	4690.3	4690.3	4690.3
2.5°	4717.5	4695.0	4645.3	4690.3	4681.7
5°	4690.3	4672.5	4622.8	4658.7	4650.1
7.5°	4658.7	4631.9	4582.1	4618.5	4609.4
10°	4609.4	4577.8	4523.8	4559.7	4546.2
12.5°	4541.4	4514.6	4460.6	4483.0	4474.0
15°	4464.9	4438.1	4379.2	4397.5	4374.9
17.5°	4370.2	4343.4	4284.5	4307.0	4284.5
20°	4266.3	4239.6	4176.4	4189.8	4172.1
22.5°	4162.9	4122.3	4063.4	4063.4	4054.4
25°	4040.9	4005.0	3928.5	3937.1	3928.5
27.5°	3905.5	3874.0	3815.6	3802.2	3779.7
30°	3770.6	3734.2	3666.7	3653.4	3635.1
32.5°	3626.1	3599.3	3527.0	3499.8	3481.5
35°	3486.4	3441.4	3369.1	3341.9	3319.3
37.5°	3328.4	3287.8	3215.5	3184.0	3161.4
40°	3166.2	3129.9	3057.6	3017.5	2999.2
42.5°	3008.3	2972.0	2900.2	2854.7	2827.9
45°	2837.0	2805.5	2737.5	2688.2	2670.0
47.5°	2670.0	2638.4	2566.2	2516.4	2489.7
50°	2494.0	2471.5	2408.3	2345.1	2322.6
52.5°	2322.6	2291.0	2232.7	2182.9	2151.4
55°	2147.1	2119.8	2065.7	2011.6	1989.2
57.5°	1970.9	1948.4	1889.6	1835.6	1817.3
60°	1794.8	1777.2	1714.0	1664.2	1650.8
62.5°	1623.6	1592.0	1547.0	1502.0	1483.8
65°	1447.9	1420.6	1375.7	1335.0	1312.5
67.5°	1267.6	1244.6	1204.4	1172.8	1154.6
70°	1100.5	1082.4	1041.7	1010.1	992.4
72.5°	929.3	911.0	888.5	857.0	843.6
75°	757.5	748.9	725.9	699.1	708.2
77.5°	604.3	586.2	577.0	563.7	550.3
80°	451.2	446.4	437.4	424.0	414.8
82.5°	306.7	306.7	302.4	284.2	284.2
85°	184.7	180.4	176.1	162.2	157.9
87.5°	81.4	72.2	63.2	49.8	44.9
90°	2.2	27.7	46.1	57.9	62.3
92.5°	57.9	48.6	55.4	60.2	62.3
95°	150.2	73.9	90.1	101.9	99.4
97.5°	270.5	81.0	117.8	124.9	127.2
100°	409.5	92.6	131.8	150.2	154.9
102.5°	561.9	557.5	136.5	161.8	168.9
105°	703.1	772.6	141.2	166.4	175.8
107.5°	867.4	925.0	145.9	171.1	180.5
110°	1024.7	1073.1	404.8	173.6	182.6

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1172.8	1214.2	1174.9	178.0	185.1
115°	1329.8	1369.1	1427.1	356.2	189.8
117.5°	1466.4	1512.5	1552.0	1221.1	615.2
120°	1619.0	1653.6	1695.4	1723.1	1410.8
122.5°	1748.4	1785.5	1831.9	1845.6	1848.1
125°	1880.2	1910.5	1954.4	1970.6	1977.5
127.5°	2000.5	2032.9	2067.8	2090.8	2093.1
130°	2113.9	2151.0	2176.3	2201.8	2199.7
132.5°	2229.6	2259.8	2285.1	2305.9	2303.8
135°	2326.8	2363.9	2384.4	2407.9	2403.1
137.5°	2428.4	2456.2	2479.5	2502.6	2495.7
140°	2527.9	2546.5	2571.8	2592.6	2581.1
142.5°	2611.3	2627.5	2657.5	2675.9	2664.4
145°	2699.2	2696.7	2736.0	2752.3	2740.7
147.5°	2775.3	2768.5	2807.7	2819.3	2810.2
150°	2849.5	2833.3	2870.3	2884.1	2872.5
152.5°	2911.8	2893.4	2928.0	2942.0	2925.8
155°	2972.0	2951.3	2979.1	2992.8	2974.4
157.5°	3020.6	3002.1	3023.0	3039.2	3020.6
160°	3062.3	3048.3	3062.3	3076.0	3059.8
162.5°	3099.1	3085.4	3096.9	3113.1	3092.3
165°	3131.5	3117.8	3124.6	3140.8	3124.6
167.5°	3157.0	3143.1	3150.2	3166.4	3145.6
170°	3177.9	3163.9	3168.6	3184.8	3163.9
172.5°	3191.6	3177.9	3182.6	3198.8	3177.9
175°	3203.2	3187.0	3191.6	3207.9	3184.8
177.5°	3207.9	3191.6	3194.1	3210.3	3189.5
180°	3196.4	3196.4	3196.4	3196.4	3196.4

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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	11.96	12.88	12.87	13.80	14.99	11.52	12.44	12.42	13.36	14.54
	3H	13.63	14.45	14.55	15.39	16.59	13.14	13.96	14.06	14.90	16.10
	4H	14.22	15.00	15.15	15.94	17.16	13.73	14.51	14.66	15.45	16.66
	6H	14.63	15.35	15.57	16.29	17.52	14.13	14.85	15.07	15.79	17.02
	8H	14.74	15.42	15.69	16.38	17.61	14.24	14.92	15.19	15.88	17.11
	12H	14.79	15.44	15.75	16.40	17.65	14.28	14.93	15.24	15.89	17.14
4H	2H	12.43	13.21	13.37	14.15	15.36	12.08	12.86	13.01	13.79	15.01
	3H	14.31	14.96	15.25	15.92	17.16	13.90	14.55	14.84	15.52	16.75
	4H	15.03	15.62	15.98	16.58	17.84	14.60	15.20	15.56	16.16	17.41
	6H	15.55	16.06	16.52	17.05	18.30	15.12	15.63	16.09	16.62	17.87
	8H	15.70	16.18	16.67	17.16	18.43	15.26	15.74	16.24	16.72	17.99
	12H	15.78	16.21	16.77	17.21	18.48	15.33	15.76	16.32	16.76	18.03
8H	4H	15.23	15.71	16.20	16.69	17.96	14.85	15.33	15.82	16.31	17.58
	6H	15.87	16.26	16.86	17.28	18.55	15.48	15.88	16.48	16.90	18.17
	8H	16.09	16.44	17.10	17.45	18.74	15.70	16.05	16.70	17.06	18.34
	12H	16.23	16.54	17.24	17.54	18.87	15.82	16.12	16.83	17.13	18.46
12H	4H	15.22	15.65	16.21	16.64	17.92	14.85	15.28	15.84	16.28	17.55
	6H	15.90	16.25	16.90	17.26	18.54	15.53	15.88	16.53	16.88	18.17
	8H	16.14	16.45	17.15	17.46	18.79	15.76	16.07	16.77	17.08	18.41

END OF REPORT