

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: P915127

Luminaire Tested: DFN2DIP-SQ4F0-140D120US927-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P915127
REPORT IS A COMBINATION OF REPORTS P901702 AND P898471
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-140D120US927-RLLONL
Description: 4 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

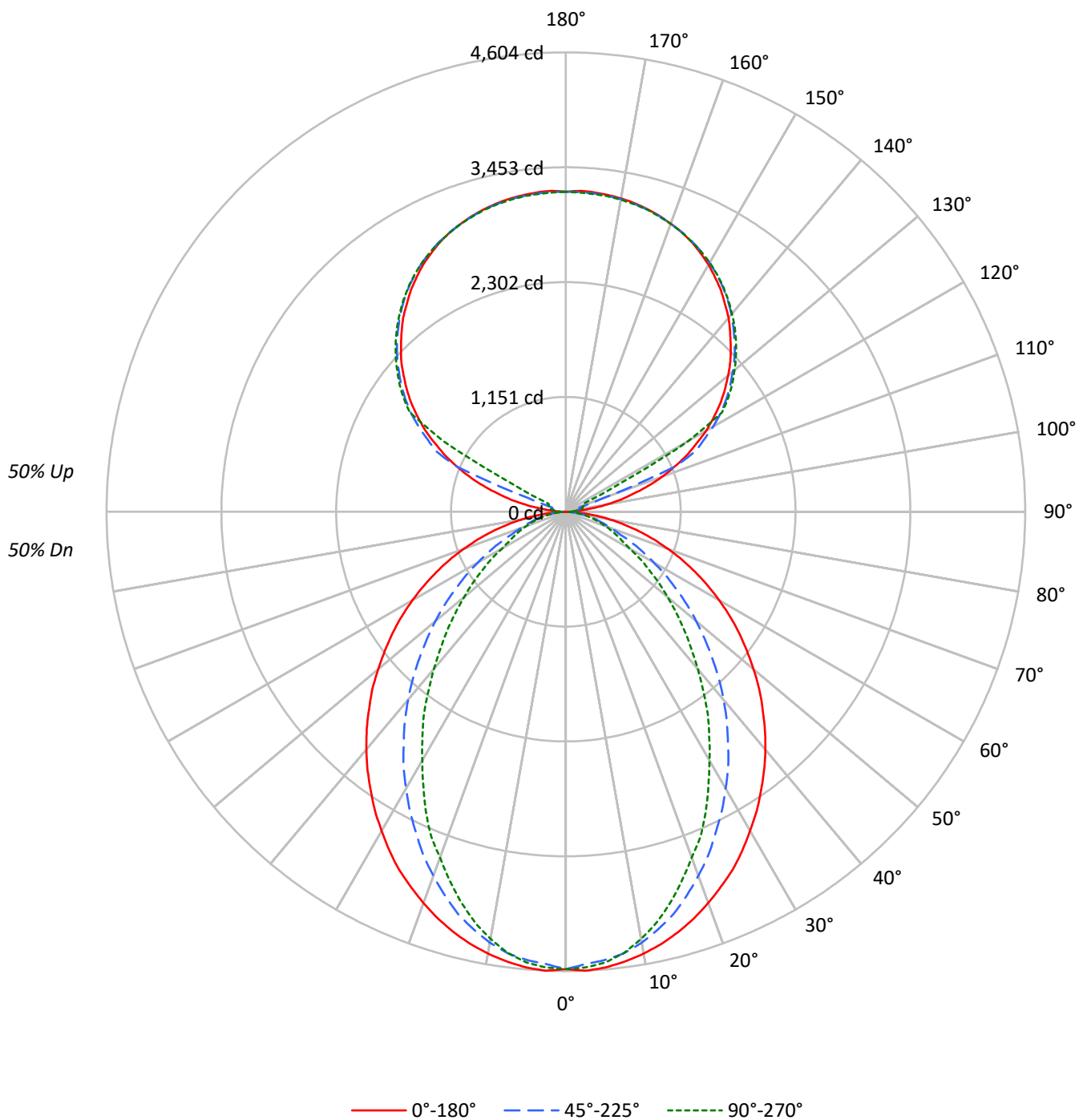
Lumens per Lamp: N/A
Luminaire Lumens: 18838.0 lumens
Efficiency: N/A
Efficacy: 80.5 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: General Diffuse

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	107	107	107	107	99	99	99	99	83	83	83	69	69	69	56	56	56
1	98	94	90	87	91	87	84	81	74	72	69	62	60	59	50	49	48
2	90	83	77	72	83	77	72	67	65	62	58	55	52	50	45	43	41
3	82	73	66	60	76	68	62	57	58	53	50	49	45	43	40	38	36
4	76	65	57	52	70	60	54	49	52	47	43	44	40	37	36	34	31
5	70	58	50	45	64	54	47	42	47	41	37	40	35	32	33	30	28
6	64	52	45	39	59	49	42	37	42	37	33	36	32	29	30	27	25
7	59	47	40	34	55	44	37	32	38	33	29	33	29	25	28	24	22
8	55	43	36	30	51	40	34	29	35	30	26	30	26	23	25	22	20
9	52	40	32	27	48	37	30	26	32	27	23	28	24	21	24	20	18
10	48	36	29	25	45	34	28	23	30	25	21	26	22	19	22	19	17

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3216	3216	3216
5°	3221	3166	3186
10°	3189	3104	3084
15°	3145	3002	2924
20°	3087	2862	2728
25°	3028	2704	2539
30°	2948	2542	2299
35°	2870	2367	2087
40°	2790	2187	1845
45°	2697	1987	1625
50°	2602	1784	1411
55°	2502	1568	1205
60°	2386	1342	992
65°	2253	1112	894
70°	2092	898	811
75°	1889	793	740
80°	1595	667	645
85°	1111	448	490

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
Vertical Angle: 45°
Luminance: 2697 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	429.6	2.3
10°-20°	1179.3	6.3
20°-30°	1655.7	8.8
30°-40°	1804.8	9.6
40°-50°	1658.8	8.8
50°-60°	1302.8	6.9
60°-70°	848.0	4.5
70°-80°	436.5	2.3
80°-90°	117.1	0.6
90°-100°	105.8	0.6
100°-110°	394.4	2.1
110°-120°	1045.9	5.6
120°-130°	1734.7	9.2
130°-140°	1842.7	9.8
140°-150°	1712.6	9.1
150°-160°	1376.9	7.3
160°-170°	887.2	4.7
170°-180°	305.4	1.6
0°-30°	3264.6	17.3
0°-40°	5069.5	26.9
0°-60°	8031.0	42.6
0°-90°	9432.6	50.1
90°-120°	1546.1	8.2
90°-150°	6836.0	36.3
90°-180°	9405.0	49.9
0°-180°	18838.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4584	4584	4584	4584	4584	
5°	4584	4563	4509	4546	4534	435
15°	4360	4314	4173	4094	4053	1229
25°	3957	3824	3551	3381	3318	1820
35°	3410	3198	2833	2572	2480	2134
45°	2788	2510	2074	1779	1680	2153
55°	2120	1796	1348	1099	1021	1894
65°	1431	1095	722	581	568	1419
75°	763	473	332	303	299	807
85°	178	91	79	79	79	205
90°	2	28	46	58	63	18
95°	151	74	90	102	100	179
105°	706	776	142	167	176	754
115°	1335	1374	1432	358	190	1314
125°	1887	1918	1962	1978	1985	1683
135°	2335	2373	2393	2417	2412	1804
145°	2709	2707	2746	2762	2751	1694
155°	2983	2962	2990	3004	2986	1375
165°	3143	3129	3136	3153	3136	888
175°	3215	3199	3204	3220	3197	306
180°	3208	3208	3208	3208	3208	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	4583.7	4583.7	4583.7	4583.7	4583.7
2.5°	4604.4	4583.7	4537.9	4579.8	4571.4
5°	4583.7	4563.0	4508.9	4546.3	4534.0
7.5°	4546.3	4521.6	4463.5	4479.9	4459.2
10°	4496.6	4467.5	4384.8	4372.0	4347.3
12.5°	4434.5	4397.1	4284.8	4260.2	4214.5
15°	4359.7	4313.9	4173.1	4094.3	4053.0
17.5°	4272.5	4206.1	4031.8	3940.7	3874.2
20°	4173.1	4089.9	3882.6	3779.2	3687.7
22.5°	4065.2	3969.8	3729.0	3588.2	3526.2
25°	3957.4	3824.5	3550.8	3380.9	3318.4
27.5°	3828.9	3687.7	3384.8	3189.9	3094.4
30°	3692.0	3534.1	3202.2	2991.0	2878.7
32.5°	3559.1	3368.1	3028.4	2779.3	2675.4
35°	3409.9	3198.3	2833.4	2572.0	2480.4
37.5°	3264.7	3036.3	2650.7	2364.3	2260.8
40°	3111.1	2862.5	2459.7	2165.3	2057.5
42.5°	2953.6	2688.2	2269.2	1962.0	1858.5
45°	2787.6	2509.5	2074.2	1779.3	1679.9
47.5°	2630.0	2335.7	1887.6	1592.8	1501.7
50°	2455.8	2161.4	1704.9	1418.5	1331.7
52.5°	2285.4	1974.3	1530.7	1257.0	1178.1
55°	2119.6	1796.0	1348.1	1099.4	1020.6
57.5°	1949.6	1617.8	1186.5	954.2	887.7
60°	1775.4	1443.5	1016.2	804.9	738.5
62.5°	1605.5	1273.7	871.0	672.0	639.1
65°	1431.2	1095.0	721.8	580.9	568.2
67.5°	1265.3	929.1	580.9	510.1	497.7
70°	1091.0	767.5	481.0	439.7	422.9
72.5°	925.1	617.9	402.3	369.2	360.9
75°	763.1	472.7	331.8	302.8	298.8
77.5°	601.7	335.8	261.4	244.7	236.3
80°	452.0	240.7	198.9	182.7	182.7
82.5°	315.1	161.9	136.9	128.5	128.5
85°	178.2	91.1	78.7	78.7	78.7
87.5°	66.5	33.0	33.0	29.1	29.1
90°	2.2	27.8	46.3	58.1	62.6
92.5°	58.1	48.8	55.7	60.4	62.6
95°	150.8	74.1	90.4	102.3	99.8
97.5°	271.6	81.4	118.3	125.4	127.6
100°	411.0	92.9	132.3	150.8	155.5
102.5°	564.0	559.6	137.0	162.4	169.5
105°	705.7	775.5	141.7	167.1	176.4
107.5°	870.5	928.4	146.4	171.7	181.1
110°	1028.5	1077.0	406.3	174.2	183.3

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1177.1	1218.7	1179.3	178.6	185.8
115°	1334.7	1374.2	1432.3	357.5	190.5
117.5°	1471.8	1518.1	1557.8	1225.6	617.5
120°	1625.1	1659.8	1701.7	1729.6	1416.1
122.5°	1754.9	1792.2	1838.7	1852.5	1855.0
125°	1887.2	1917.6	1961.7	1977.9	1984.8
127.5°	2007.9	2040.5	2075.5	2098.6	2100.9
130°	2121.8	2159.0	2184.4	2210.0	2207.8
132.5°	2237.8	2268.2	2293.5	2314.5	2312.3
135°	2335.4	2372.7	2393.3	2416.8	2412.1
137.5°	2437.5	2465.3	2488.7	2511.8	2505.0
140°	2537.3	2556.0	2581.3	2602.3	2590.7
142.5°	2621.0	2637.3	2667.4	2685.8	2674.2
145°	2709.3	2706.8	2746.2	2762.5	2750.8
147.5°	2785.6	2778.7	2818.2	2829.8	2820.6
150°	2860.0	2843.8	2881.0	2894.8	2883.2
152.5°	2922.6	2904.1	2938.9	2952.9	2936.7
155°	2983.0	2962.3	2990.2	3004.0	2985.5
157.5°	3031.8	3013.3	3034.3	3050.5	3031.8
160°	3073.7	3059.6	3073.7	3087.4	3071.2
162.5°	3110.7	3096.9	3108.4	3124.7	3103.8
165°	3143.1	3129.4	3136.2	3152.6	3136.2
167.5°	3168.8	3154.7	3161.9	3178.2	3157.2
170°	3189.7	3175.7	3180.4	3196.6	3175.7
172.5°	3203.5	3189.7	3194.5	3210.7	3189.7
175°	3215.1	3198.8	3203.5	3219.8	3196.6
177.5°	3219.8	3203.5	3206.0	3222.3	3201.4
180°	3208.3	3208.3	3208.3	3208.3	3208.3

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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	11.22	12.06	12.19	13.03	14.30	7.19	8.02	8.15	8.99	10.26
	3H	12.91	13.65	13.88	14.63	15.93	8.38	9.12	9.35	10.10	11.40
	4H	13.52	14.22	14.51	15.21	16.51	8.83	9.53	9.81	10.51	11.82
	6H	13.94	14.59	14.94	15.58	16.90	9.15	9.79	10.15	10.79	12.10
	8H	14.07	14.69	15.08	15.70	17.01	9.24	9.85	10.24	10.86	12.17
	12H	14.14	14.72	15.15	15.72	17.06	9.28	9.87	10.29	10.87	12.21
4H	2H	11.24	11.95	12.24	12.93	14.24	7.78	8.49	8.78	9.47	10.78
	3H	13.08	13.66	14.08	14.68	15.99	9.14	9.72	10.14	10.73	12.05
	4H	13.77	14.31	14.78	15.31	16.66	9.68	10.22	10.69	11.23	12.57
	6H	14.29	14.75	15.31	15.78	17.12	10.10	10.56	11.13	11.59	12.93
	8H	14.47	14.90	15.49	15.92	17.28	10.23	10.66	11.26	11.69	13.04
	12H	14.57	14.95	15.61	15.99	17.35	10.30	10.68	11.34	11.72	13.08
8H	4H	13.74	14.17	14.76	15.19	16.55	9.97	10.39	10.99	11.42	12.77
	6H	14.31	14.66	15.36	15.73	17.08	10.49	10.84	11.53	11.91	13.26
	8H	14.53	14.84	15.59	15.89	17.26	10.68	10.99	11.73	12.04	13.41
	12H	14.67	14.95	15.73	15.99	17.41	10.80	11.07	11.86	12.12	13.53
12H	4H	13.69	14.08	14.73	15.12	16.48	9.97	10.36	11.01	11.40	12.76
	6H	14.29	14.60	15.34	15.65	17.02	10.54	10.85	11.59	11.90	13.27
	8H	14.51	14.78	15.57	15.83	17.24	10.75	11.02	11.81	12.07	13.48