

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: P903931

Luminaire Tested: DFN2DIP-SQ3F0-120D110US830-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P903931
REPORT IS A COMBINATION OF REPORTS P901524 AND P898289
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ3F0-120D110US830-RLLONL
Description: 3 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

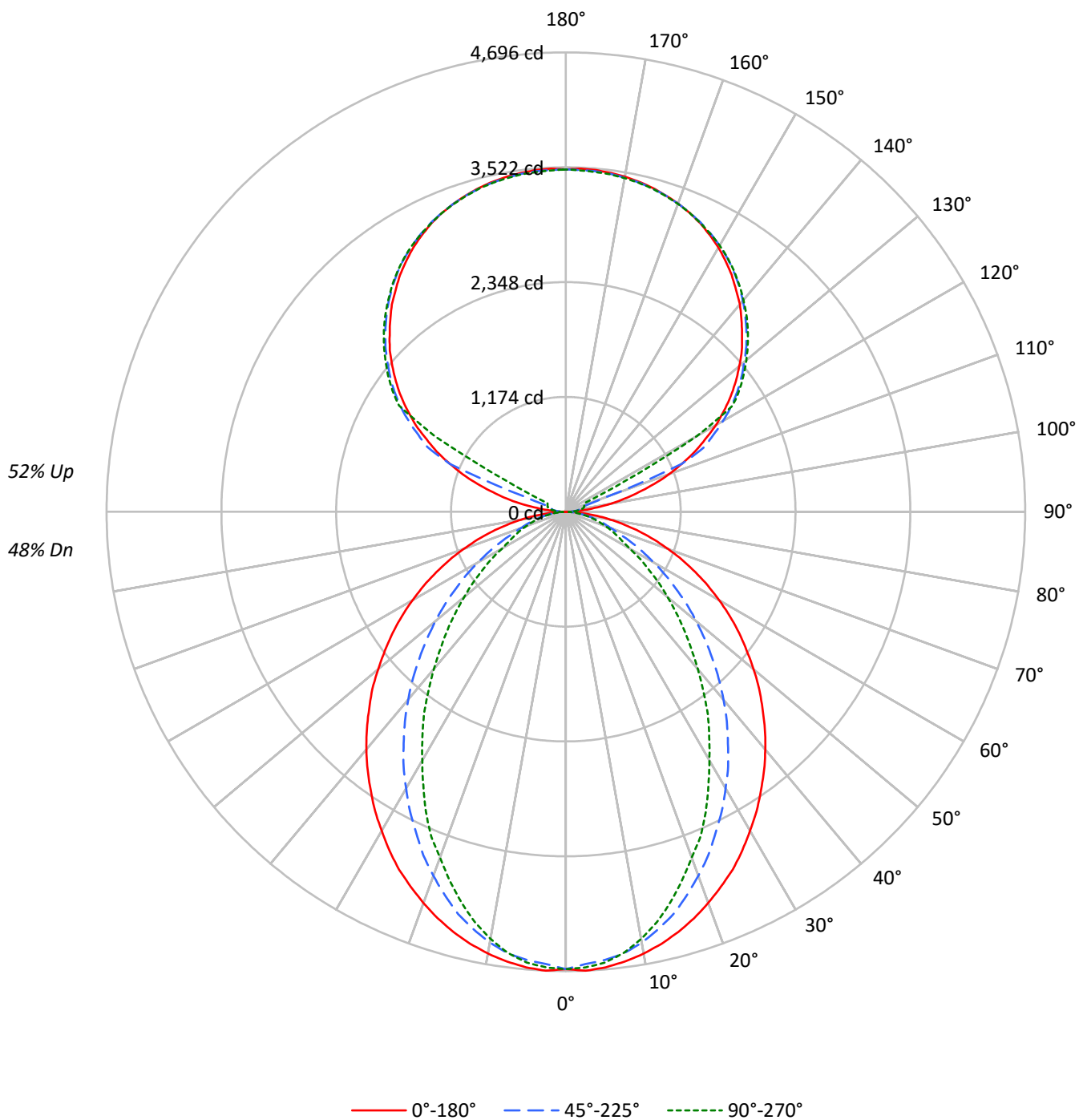
Lumens per Lamp: N/A
Luminaire Lumens: 19878.2 lumens
Efficiency: N/A
Efficacy: 93.9 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.06' x L: 3.06' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 211.7
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9957
Total Harmonic Distortion (THDi): 0.049
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	98	98	98	98	82	82	82	68	68	68	55	55	55
1	98	94	90	87	90	87	83	80	73	71	69	60	59	58	49	48	47
2	90	82	77	72	82	76	71	67	64	61	58	54	51	49	44	42	40
3	82	73	66	60	75	67	61	56	57	53	49	48	45	42	39	37	35
4	75	65	57	51	69	60	53	48	51	46	42	43	39	36	35	33	30
5	69	58	50	44	64	54	47	42	46	41	37	39	35	32	32	29	27
6	64	52	44	39	59	49	42	36	42	36	32	35	31	28	29	26	24
7	59	47	39	34	54	44	37	32	38	32	29	32	28	25	27	24	21
8	55	43	35	30	51	40	33	29	35	29	25	30	25	22	25	22	19
9	51	39	32	27	47	37	30	26	32	27	23	27	23	20	23	20	18
10	48	36	29	24	44	34	27	23	29	24	21	25	21	18	21	18	16

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	5356	5356	5356
5°	5361	5268	5303
10°	5305	5161	5129
15°	5228	4987	4861
20°	5128	4748	4532
25°	5026	4482	4214
30°	4890	4209	3812
35°	4756	3915	3459
40°	4619	3612	3055
45°	4461	3276	2688
50°	4297	2938	2330
55°	4126	2577	1987
60°	3927	2199	1634
65°	3698	1816	1468
70°	3421	1459	1326
75°	3072	1278	1202
80°	2567	1061	1037
85°	1741	691	769

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 4461 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	438.1	2.2
10°-20°	1202.7	6.1
20°-30°	1688.5	8.5
30°-40°	1840.6	9.3
40°-50°	1691.7	8.5
50°-60°	1328.6	6.7
60°-70°	864.8	4.4
70°-80°	445.2	2.2
80°-90°	119.8	0.6
90°-100°	115.4	0.6
100°-110°	430.1	2.2
110°-120°	1140.7	5.7
120°-130°	1892.0	9.5
130°-140°	2009.7	10.1
140°-150°	1867.8	9.4
150°-160°	1501.7	7.6
160°-170°	967.6	4.9
170°-180°	333.0	1.7
0°-30°	3329.4	16.7
0°-40°	5170.0	26.0
0°-60°	8190.3	41.2
0°-90°	9620.1	48.4
90°-120°	1686.2	8.5
90°-150°	7455.8	37.5
90°-180°	10258.0	51.6
0°-180°	19878.2	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4675	4675	4675	4675	4675	
5°	4675	4654	4598	4636	4624	443
15°	4446	4400	4256	4176	4133	1253
25°	4036	3900	3621	3448	3384	1856
35°	3478	3262	2890	2623	2530	2177
45°	2843	2559	2115	1815	1713	2195
55°	2162	1832	1375	1121	1041	1932
65°	1460	1117	736	592	580	1447
75°	778	482	338	309	305	823
85°	182	93	80	80	80	209
90°	2	30	50	63	68	19
95°	164	81	99	112	109	195
105°	770	846	155	182	192	822
115°	1456	1499	1562	390	208	1433
125°	2058	2091	2140	2157	2165	1836
135°	2547	2588	2610	2636	2631	1968
145°	2955	2952	2995	3013	3000	1848
155°	3254	3231	3261	3276	3256	1499
165°	3428	3413	3421	3438	3421	969
175°	3506	3489	3494	3512	3486	334
180°	3499	3499	3499	3499	3499	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	4674.6	4674.6	4674.6	4674.6	4674.6
2.5°	4695.7	4674.6	4628.0	4670.6	4662.0
5°	4674.6	4653.5	4598.3	4636.5	4623.9
7.5°	4636.5	4611.3	4552.1	4568.7	4547.6
10°	4585.8	4556.2	4471.7	4458.7	4433.6
12.5°	4522.4	4484.3	4369.8	4344.7	4298.1
15°	4446.2	4399.5	4255.9	4175.5	4133.3
17.5°	4357.3	4289.5	4111.7	4018.9	3951.1
20°	4255.9	4171.0	3959.6	3854.1	3760.7
22.5°	4145.9	4048.5	3803.0	3659.3	3596.1
25°	4036.0	3900.3	3621.2	3447.9	3384.2
27.5°	3904.9	3760.7	3452.0	3253.2	3155.7
30°	3765.3	3604.2	3265.7	3050.3	2935.8
32.5°	3629.7	3434.9	3088.4	2834.4	2728.5
35°	3477.6	3261.7	2889.6	2623.0	2529.6
37.5°	3329.4	3096.5	2703.3	2411.1	2305.6
40°	3172.8	2919.2	2508.6	2208.3	2098.3
42.5°	3012.1	2741.5	2314.2	2000.9	1895.5
45°	2842.9	2559.3	2115.3	1814.7	1713.2
47.5°	2682.2	2382.0	1925.0	1624.4	1531.4
50°	2504.5	2204.2	1738.8	1446.6	1358.2
52.5°	2330.8	2013.5	1561.0	1281.9	1201.6
55°	2161.6	1831.7	1374.8	1121.2	1040.8
57.5°	1988.3	1649.9	1210.0	973.1	905.3
60°	1810.6	1472.2	1036.3	821.0	753.2
62.5°	1637.4	1298.9	888.3	685.4	651.7
65°	1459.6	1116.7	736.1	592.5	579.5
67.5°	1290.4	947.4	592.5	520.2	507.7
70°	1112.7	782.8	490.6	448.4	431.3
72.5°	943.5	630.2	410.2	376.5	368.1
75°	778.3	482.0	338.5	308.8	304.7
77.5°	613.6	342.4	266.6	249.6	241.0
80°	461.0	245.5	202.8	186.2	186.2
82.5°	321.4	165.1	139.6	131.0	131.0
85°	181.8	92.9	80.3	80.3	80.3
87.5°	67.8	33.6	33.6	29.6	29.6
90°	2.5	30.3	50.5	63.4	68.2
92.5°	63.4	53.3	60.7	65.9	68.2
95°	164.5	80.9	98.6	111.5	108.9
97.5°	296.1	88.7	128.9	136.8	139.2
100°	448.3	101.3	144.3	164.5	169.6
102.5°	615.1	610.3	149.4	177.1	184.9
105°	769.7	845.7	154.6	182.2	192.5
107.5°	949.5	1012.6	159.7	187.3	197.6
110°	1121.7	1174.7	443.2	190.0	199.9



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1283.8	1329.2	1286.2	194.8	202.6
115°	1455.8	1498.7	1562.3	389.9	207.7
117.5°	1605.2	1655.8	1699.0	1336.7	673.4
120°	1772.4	1810.2	1856.0	1886.3	1544.4
122.5°	1914.0	1954.5	2005.4	2020.4	2023.2
125°	2058.3	2091.4	2139.5	2157.2	2164.7
127.5°	2190.0	2225.4	2263.6	2288.9	2291.3
130°	2314.1	2354.8	2382.4	2410.4	2408.0
132.5°	2440.7	2473.8	2501.5	2524.3	2522.0
135°	2547.2	2587.7	2610.3	2635.9	2630.7
137.5°	2658.4	2688.8	2714.3	2739.6	2732.1
140°	2767.3	2787.7	2815.4	2838.2	2825.6
142.5°	2858.6	2876.4	2909.2	2929.3	2916.7
145°	2954.9	2952.1	2995.1	3012.9	3000.3
147.5°	3038.2	3030.7	3073.6	3086.3	3076.4
150°	3119.3	3101.6	3142.2	3157.2	3144.6
152.5°	3187.6	3167.4	3205.3	3220.7	3202.9
155°	3253.5	3230.8	3261.2	3276.3	3256.1
157.5°	3306.6	3286.5	3309.4	3327.1	3306.6
160°	3352.3	3337.0	3352.3	3367.3	3349.6
162.5°	3392.6	3377.6	3390.2	3408.0	3385.1
165°	3428.1	3413.0	3420.6	3438.3	3420.6
167.5°	3456.0	3440.8	3448.6	3466.3	3443.5
170°	3478.9	3463.6	3468.6	3486.5	3463.6
172.5°	3493.9	3478.9	3484.0	3501.7	3478.9
175°	3506.5	3488.8	3493.9	3511.7	3486.5
177.5°	3511.7	3493.9	3496.6	3514.4	3491.6
180°	3499.1	3499.1	3499.1	3499.1	3499.1

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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	12.79	13.61	13.77	14.60	15.89	8.75	9.57	9.73	10.56	11.85
	3H	14.46	15.19	15.45	16.19	17.51	9.93	10.66	10.92	11.66	12.98
	4H	15.07	15.76	16.07	16.76	18.09	10.38	11.07	11.38	12.07	13.40
	6H	15.49	16.12	16.50	17.13	18.46	10.69	11.33	11.71	12.33	13.67
	8H	15.61	16.21	16.63	17.23	18.57	10.78	11.39	11.80	12.41	13.74
	12H	15.67	16.24	16.69	17.26	18.62	10.82	11.40	11.84	12.41	13.77
4H	2H	12.81	13.50	13.81	14.50	15.82	9.34	10.04	10.35	11.03	12.36
	3H	14.63	15.20	15.65	16.23	17.57	10.69	11.26	11.70	12.29	13.63
	4H	15.32	15.84	16.34	16.86	18.23	11.23	11.75	12.25	12.77	14.14
	6H	15.83	16.28	16.86	17.32	18.68	11.64	12.09	12.67	13.13	14.49
	8H	16.00	16.42	17.03	17.46	18.83	11.76	12.18	12.80	13.22	14.60
	12H	16.09	16.47	17.14	17.52	18.90	11.82	12.20	12.88	13.26	14.63
8H	4H	15.28	15.70	16.32	16.74	18.11	11.50	11.92	12.54	12.96	14.34
	6H	15.84	16.19	16.90	17.27	18.64	12.01	12.36	13.07	13.44	14.81
	8H	16.06	16.36	17.12	17.42	18.82	12.20	12.50	13.27	13.57	14.96
	12H	16.19	16.46	17.26	17.52	18.95	12.31	12.58	13.38	13.64	15.07
12H	4H	15.23	15.61	16.29	16.66	18.04	11.51	11.89	12.56	12.94	14.32
	6H	15.82	16.12	16.88	17.19	18.58	12.06	12.37	13.13	13.43	14.82
	8H	16.03	16.30	17.10	17.36	18.79	12.27	12.53	13.33	13.59	15.02