

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: P922851

Luminaire Tested: DFN2DIP-SQ3F0-070D120US940-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P922851
REPORT IS A COMBINATION OF REPORTS P901532 AND P898289
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ3F0-070D120US940-RLLONL
Description: 3 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

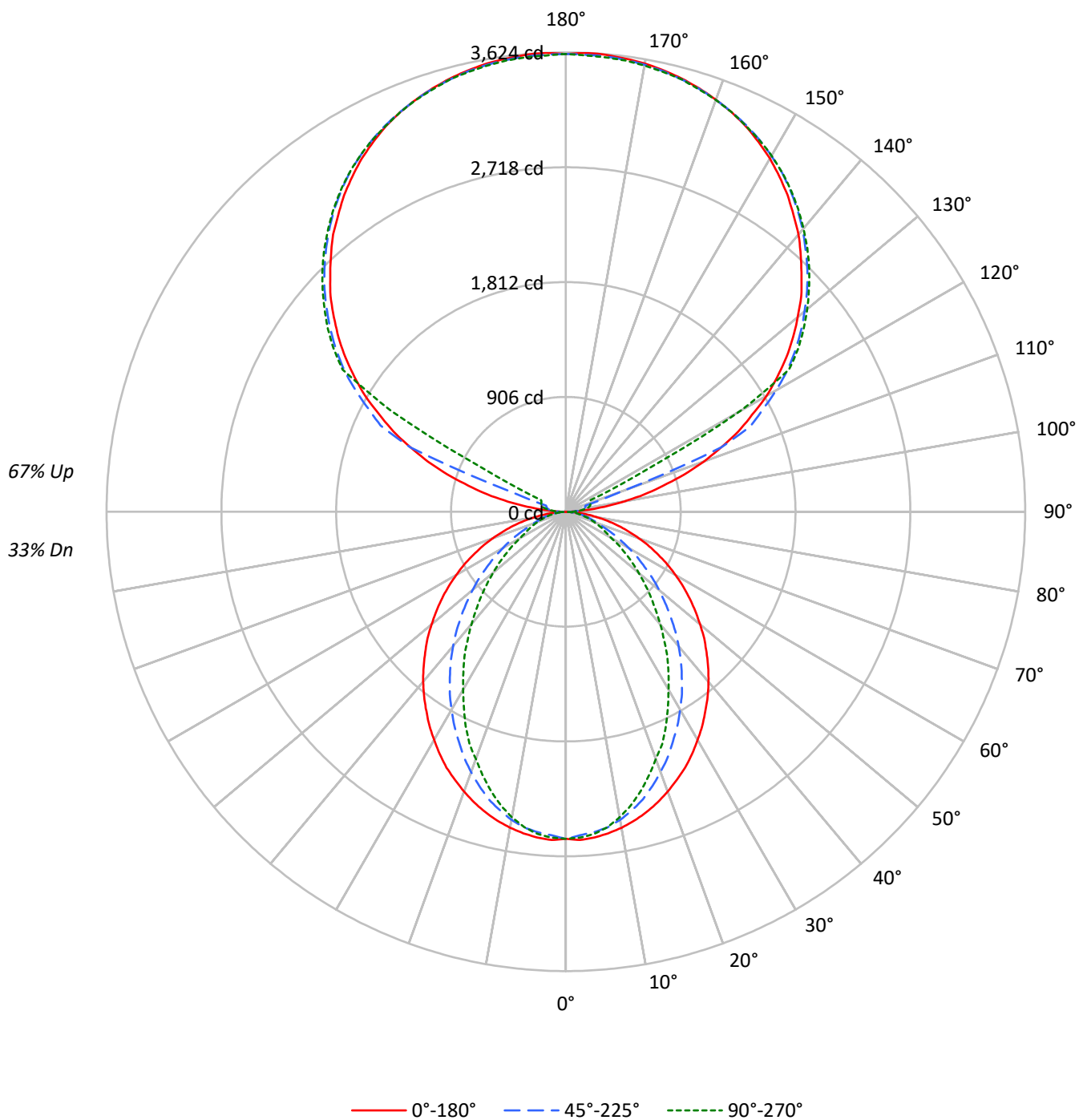
Lumens per Lamp: N/A
Luminaire Lumens: 15899.2 lumens
Efficiency: N/A
Efficacy: 99.6 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.06' x L: 3.06' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 159.7
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9963
Total Harmonic Distortion (THDi): 0.065
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	103	103	103	103	93	93	93	93	74	74	74		57	57	57		41
1	94	90	87	83	85	82	79	76	65	63	61		50	49	48		37
2	86	79	73	69	78	72	67	63	58	54	51		45	42	40		33
3	79	70	63	57	71	63	57	53	51	47	43		40	37	35		29
4	72	62	54	49	65	56	50	45	45	41	37		36	32	30		26
5	66	55	48	42	60	50	44	39	41	36	32		32	29	26		24
6	61	50	42	36	55	45	38	34	37	32	28		29	25	23		22
7	56	45	37	32	51	41	34	29	33	28	25		26	23	20		20
8	52	41	33	28	47	37	31	26	30	26	22		24	21	18		18
9	49	37	30	25	44	34	28	23	28	23	20		22	19	16		17
10	45	34	27	22	41	31	25	21	26	21	18		21	17	15		16

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2956	2956	2956
5°	2959	2907	2927
10°	2928	2848	2831
15°	2885	2752	2682
20°	2830	2620	2501
25°	2774	2473	2326
30°	2698	2323	2104
35°	2624	2161	1909
40°	2549	1994	1686
45°	2462	1808	1484
50°	2372	1621	1286
55°	2277	1422	1096
60°	2168	1214	901
65°	2041	1002	810
70°	1888	805	732
75°	1695	705	664
80°	1417	586	572
85°	960	381	424

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 2472 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	241.8	1.5
10°-20°	663.7	4.2
20°-30°	931.9	5.9
30°-40°	1015.8	6.4
40°-50°	933.6	5.9
50°-60°	733.2	4.6
60°-70°	477.3	3.0
70°-80°	245.7	1.5
80°-90°	69.0	0.4
90°-100°	119.1	0.7
100°-110°	443.9	2.8
110°-120°	1177.3	7.4
120°-130°	1952.7	12.3
130°-140°	2074.2	13.0
140°-150°	1927.7	12.1
150°-160°	1549.8	9.7
160°-170°	998.7	6.3
170°-180°	343.7	2.2
0°-30°	1837.4	11.6
0°-40°	2853.2	17.9
0°-60°	4520.0	28.4
0°-90°	5312.0	33.4
90°-120°	1740.3	10.9
90°-150°	7694.9	48.4
90°-180°	10587.0	66.6
0°-180°	15899.2	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2580	2580	2580	2580	2580	
5°	2580	2568	2538	2559	2552	245
15°	2454	2428	2349	2304	2281	691
25°	2227	2152	1998	1903	1868	1024
35°	1919	1800	1595	1448	1396	1201
45°	1569	1412	1167	1002	946	1212
55°	1193	1011	759	619	574	1066
65°	806	616	406	327	320	799
75°	430	266	187	170	168	454
85°	100	51	44	44	44	115
90°	2	31	52	66	70	15
95°	170	84	102	115	112	201
105°	794	873	160	188	199	849
115°	1502	1547	1612	402	214	1479
125°	2124	2158	2208	2226	2234	1895
135°	2629	2671	2694	2720	2715	2031
145°	3050	3047	3091	3110	3096	1907
155°	3358	3334	3366	3381	3361	1547
165°	3538	3522	3530	3549	3530	1000
175°	3619	3601	3606	3624	3598	344
180°	3611	3611	3611	3611	3611	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2579.8	2579.8	2579.8	2579.8	2579.8
2.5°	2591.4	2579.8	2554.0	2577.6	2572.9
5°	2579.8	2568.1	2537.7	2558.8	2551.8
7.5°	2558.8	2544.9	2512.2	2521.3	2509.7
10°	2530.8	2514.4	2467.8	2460.7	2446.8
12.5°	2495.8	2474.8	2411.6	2397.7	2371.9
15°	2453.7	2427.9	2348.7	2304.4	2281.1
17.5°	2404.7	2367.3	2269.2	2217.9	2180.5
20°	2348.7	2301.9	2185.2	2127.0	2075.5
22.5°	2288.0	2234.3	2098.7	2019.5	1984.6
25°	2227.3	2152.5	1998.4	1902.8	1867.7
27.5°	2155.0	2075.5	1905.1	1795.4	1741.6
30°	2078.0	1989.0	1802.2	1683.4	1620.2
32.5°	2003.1	1895.7	1704.4	1564.2	1505.7
35°	1919.1	1800.0	1594.7	1447.6	1396.1
37.5°	1837.5	1708.9	1491.9	1330.6	1272.5
40°	1751.0	1611.1	1384.4	1218.7	1158.0
42.5°	1662.3	1513.0	1277.1	1104.2	1046.1
45°	1569.0	1412.4	1167.4	1001.5	945.5
47.5°	1480.2	1314.6	1062.4	896.4	845.2
50°	1382.2	1216.5	959.6	798.3	749.6
52.5°	1286.3	1111.2	861.5	707.4	663.1
55°	1192.9	1010.8	758.7	618.8	574.4
57.5°	1097.3	910.5	667.8	537.0	499.6
60°	999.3	812.4	571.9	453.1	415.6
62.5°	903.6	716.8	490.2	378.3	359.6
65°	805.5	616.3	406.3	327.0	319.8
67.5°	712.1	522.9	327.0	287.0	280.2
70°	614.0	431.9	270.7	247.4	238.0
72.5°	520.7	347.8	226.4	207.9	203.1
75°	429.5	266.0	186.7	170.4	168.2
77.5°	338.6	189.0	147.1	137.7	133.0
80°	254.4	135.5	112.0	102.8	102.8
82.5°	177.4	91.1	77.0	72.3	72.3
85°	100.3	51.3	44.3	44.3	44.3
87.5°	37.4	18.5	18.5	16.3	16.3
90°	2.5	31.3	52.2	65.5	70.4
92.5°	65.5	54.9	62.7	67.9	70.4
95°	169.7	83.5	101.7	115.1	112.4
97.5°	305.7	91.6	133.1	141.2	143.7
100°	462.6	104.6	148.9	169.7	175.0
102.5°	634.9	629.9	154.2	182.8	190.8
105°	794.3	872.9	159.5	188.1	198.6
107.5°	979.9	1045.1	164.8	193.3	203.8
110°	1157.7	1212.4	457.4	196.1	206.3

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1325.0	1371.8	1327.5	201.1	209.1
115°	1502.4	1546.8	1612.3	402.4	214.5
117.5°	1656.7	1708.9	1753.5	1379.6	695.1
120°	1829.3	1868.3	1915.5	1946.9	1594.0
122.5°	1975.4	2017.3	2069.7	2085.3	2088.0
125°	2124.3	2158.5	2208.1	2226.4	2234.2
127.5°	2260.2	2296.9	2336.3	2362.3	2364.8
130°	2388.4	2430.3	2458.8	2487.7	2485.2
132.5°	2519.0	2553.1	2581.7	2605.3	2602.8
135°	2628.9	2670.8	2694.0	2720.4	2715.2
137.5°	2743.7	2775.0	2801.4	2827.4	2819.7
140°	2856.1	2877.1	2905.6	2929.3	2916.2
142.5°	2950.3	2968.7	3002.5	3023.3	3010.2
145°	3049.6	3046.9	3091.2	3109.6	3096.5
147.5°	3135.6	3127.9	3172.3	3185.3	3175.0
150°	3219.3	3201.1	3243.0	3258.5	3245.5
152.5°	3289.8	3269.0	3308.2	3323.9	3305.7
155°	3357.7	3334.5	3365.8	3381.4	3360.6
157.5°	3412.7	3391.9	3415.5	3433.8	3412.7
160°	3459.8	3444.1	3459.8	3475.4	3457.1
162.5°	3501.5	3486.0	3499.0	3517.3	3493.7
165°	3538.0	3522.5	3530.3	3548.7	3530.3
167.5°	3566.9	3551.1	3559.2	3577.5	3553.9
170°	3590.5	3574.7	3579.9	3598.2	3574.7
172.5°	3606.0	3590.5	3595.8	3614.1	3590.5
175°	3619.0	3600.7	3606.0	3624.4	3598.2
177.5°	3624.4	3606.0	3608.8	3627.1	3603.6
180°	3611.3	3611.3	3611.3	3611.3	3611.3

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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	9.09	9.81	10.19	10.89	12.39	5.06	5.77	6.15	6.85	8.35
	3H	10.76	11.39	11.86	12.49	14.00	6.23	6.86	7.33	7.96	9.47
	4H	11.36	11.96	12.47	13.06	14.57	6.67	7.27	7.78	8.37	9.88
	6H	11.77	12.32	12.89	13.42	14.95	6.98	7.53	8.10	8.63	10.16
	8H	11.89	12.42	13.02	13.53	15.05	7.06	7.59	8.19	8.70	10.22
	12H	11.95	12.45	13.08	13.56	15.10	7.10	7.60	8.23	8.71	10.25
4H	2H	9.10	9.70	10.22	10.80	12.31	5.63	6.24	6.75	7.33	8.85
	3H	10.91	11.41	12.03	12.53	14.06	6.97	7.47	8.09	8.59	10.12
	4H	11.59	12.05	12.72	13.17	14.71	7.50	7.96	8.63	9.08	10.63
	6H	12.10	12.49	13.23	13.63	15.17	7.91	8.30	9.04	9.44	10.98
	8H	12.27	12.64	13.40	13.76	15.32	8.03	8.40	9.17	9.53	11.08
	12H	12.35	12.69	13.51	13.83	15.39	8.09	8.42	9.24	9.56	11.12
8H	4H	11.55	11.92	12.69	13.05	14.60	7.77	8.14	8.91	9.27	10.82
	6H	12.11	12.41	13.26	13.58	15.13	8.28	8.58	9.43	9.75	11.30
	8H	12.32	12.58	13.48	13.73	15.31	8.46	8.73	9.62	9.88	11.45
	12H	12.45	12.68	13.61	13.83	15.44	8.57	8.80	9.74	9.95	11.56
12H	4H	11.50	11.83	12.65	12.97	14.53	7.77	8.10	8.92	9.24	10.80
	6H	12.08	12.35	13.24	13.50	15.07	8.32	8.59	9.49	9.74	11.31
	8H	12.29	12.53	13.46	13.67	15.28	8.52	8.76	9.69	9.90	11.51

END OF REPORT