

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: P923093

Luminaire Tested: DFN2DIP-SQ4F0-070D120US940-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P923093
REPORT IS A COMBINATION OF REPORTS P901689 AND P898471
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-070D120US940-FLLONL
Description: 4 foot, Square Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

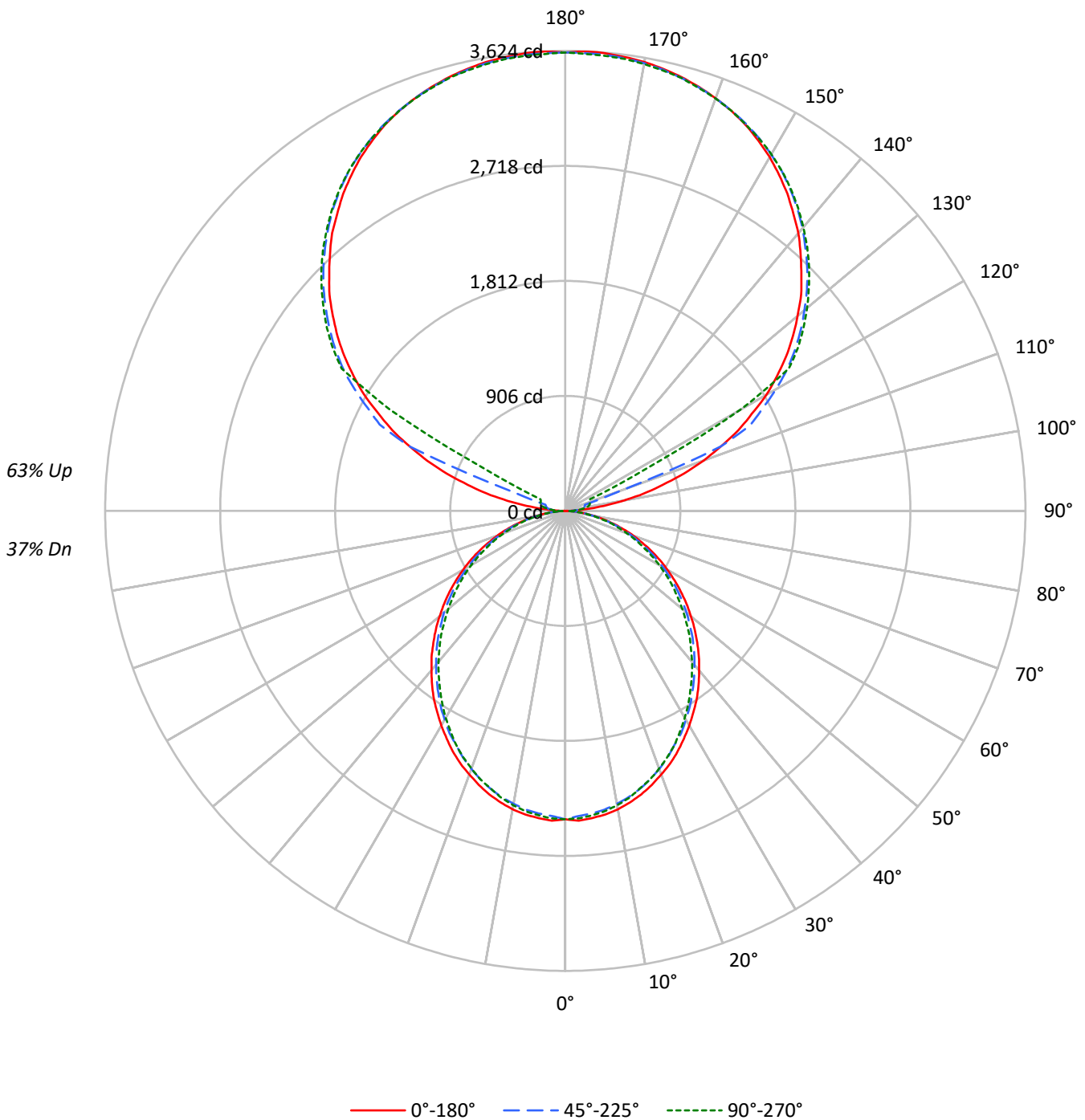
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 16773.1 lumens
Efficiency: N/A
Efficacy: 110.8 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: Semi-Indirect

Input Watts (W): 151.4
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9967
Total Harmonic Distortion (THDi): 0.063
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				20	
RC	80				70				50				30				10				0	
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	0	
RCR																						
0	104	104	104	104	94	94	94	94	76	76	76	59	59	59	44	44	44	37				37
1	95	91	87	83	86	82	79	76	67	64	62	52	51	49	39	38	37	31				31
2	86	79	73	68	78	72	67	62	58	55	52	46	43	41	34	33	31	26				26
3	79	69	62	57	71	63	57	52	51	47	43	40	37	35	30	28	27	22				22
4	72	61	54	48	65	56	49	44	46	41	37	36	33	30	27	25	23	19				19
5	66	55	47	41	60	50	43	38	41	36	32	32	29	26	24	22	20	16				16
6	61	49	41	35	55	45	38	33	37	31	28	29	25	23	22	20	18	14				14
7	56	44	36	31	51	40	33	29	33	28	24	26	23	20	20	18	16	13				13
8	52	40	32	27	47	37	30	25	30	25	21	24	20	18	19	16	14	11				11
9	48	36	29	24	44	33	27	22	28	23	19	22	19	16	17	15	13	10				10
10	45	33	26	22	41	31	24	20	25	21	17	20	17	14	16	13	11	9				9

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1704	1704	1704
5°	1707	1681	1692
10°	1693	1658	1670
15°	1668	1632	1635
20°	1634	1594	1598
25°	1601	1549	1556
30°	1559	1507	1503
35°	1519	1458	1447
40°	1470	1408	1393
45°	1422	1358	1338
50°	1368	1305	1274
55°	1312	1244	1216
60°	1249	1172	1149
65°	1180	1098	1070
70°	1093	1007	985
75°	971	898	908
80°	825	760	758
85°	596	520	510

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°
 Vertical Angle: 90°
 Luminance: 1935 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	228.6	1.4
10°-20°	643.2	3.8
20°-30°	945.2	5.6
30°-40°	1097.8	6.5
40°-50°	1096.5	6.5
50°-60°	956.1	5.7
60°-70°	706.8	4.2
70°-80°	399.9	2.4
80°-90°	111.9	0.7
90°-100°	119.1	0.7
100°-110°	443.9	2.6
110°-120°	1177.3	7.0
120°-130°	1952.7	11.6
130°-140°	2074.2	12.4
140°-150°	1927.7	11.5
150°-160°	1549.8	9.2
160°-170°	998.7	6.0
170°-180°	343.7	2.0
0°-30°	1817.0	10.8
0°-40°	2914.9	17.4
0°-60°	4967.4	29.6
0°-90°	6185.9	36.9
90°-120°	1740.3	10.4
90°-150°	7694.9	45.9
90°-180°	10587.0	63.1
0°-180°	16773.1	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2429	2429	2429	2429	2429	
5°	2429	2420	2394	2412	2408	231
15°	2312	2298	2268	2277	2266	651
25°	2093	2074	2034	2039	2034	963
35°	1805	1782	1745	1730	1719	1127
45°	1469	1453	1418	1392	1383	1134
55°	1112	1098	1070	1042	1030	994
65°	750	736	712	691	680	741
75°	392	388	376	362	367	419
85°	96	94	91	84	82	107
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°	2428.8	2428.8	2428.8	2428.8	2428.8
2.5°	2442.9	2431.2	2405.5	2428.8	2424.3
5°	2428.8	2419.7	2393.9	2412.4	2408.0
7.5°	2412.4	2398.5	2372.8	2391.7	2386.9
10°	2386.9	2370.5	2342.5	2361.2	2354.2
12.5°	2351.7	2337.9	2309.9	2321.5	2316.8
15°	2312.1	2298.2	2267.7	2277.2	2265.5
17.5°	2263.0	2249.2	2218.7	2230.3	2218.7
20°	2209.2	2195.4	2162.7	2169.6	2160.4
22.5°	2155.7	2134.7	2104.2	2104.2	2099.4
25°	2092.6	2073.9	2034.3	2038.8	2034.3
27.5°	2022.4	2006.1	1975.9	1968.9	1957.2
30°	1952.6	1933.7	1898.8	1891.9	1882.4
32.5°	1877.7	1863.9	1826.4	1812.3	1802.9
35°	1805.4	1782.1	1744.6	1730.5	1718.9
37.5°	1723.6	1702.5	1665.1	1648.8	1637.1
40°	1639.6	1620.8	1583.3	1562.5	1553.1
42.5°	1557.8	1539.0	1501.8	1478.3	1464.4
45°	1469.1	1452.8	1417.6	1392.0	1382.6
47.5°	1382.6	1366.3	1328.8	1303.1	1289.2
50°	1291.5	1279.8	1247.1	1214.4	1202.7
52.5°	1202.7	1186.4	1156.2	1130.4	1114.0
55°	1111.8	1097.7	1069.7	1041.7	1030.0
57.5°	1020.7	1009.0	978.5	950.5	941.1
60°	929.4	920.2	887.6	861.8	854.9
62.5°	840.7	824.4	801.1	777.8	768.4
65°	749.8	735.7	712.4	691.3	679.7
67.5°	656.4	644.5	623.7	607.3	597.9
70°	569.9	560.5	539.4	523.1	513.9
72.5°	481.2	471.8	460.1	443.8	436.8
75°	392.3	387.8	375.9	362.0	366.8
77.5°	313.0	303.5	298.8	291.9	285.0
80°	233.6	231.2	226.5	219.5	214.8
82.5°	158.8	158.8	156.6	147.2	147.2
85°	95.7	93.5	91.2	84.0	81.8
87.5°	42.1	37.5	32.7	25.8	23.3
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	7.79	8.54	8.85	9.61	11.05	7.34	8.10	8.40	9.16	10.61
	3H	9.44	10.12	10.51	11.19	12.66	8.95	9.63	10.02	10.70	12.17
	4H	10.03	10.67	11.11	11.74	13.22	9.53	10.17	10.62	11.25	12.72
	6H	10.43	11.02	11.52	12.09	13.58	9.93	10.52	11.02	11.59	13.08
	8H	10.53	11.09	11.63	12.19	13.66	10.03	10.59	11.12	11.68	13.16
	12H	10.58	11.11	11.68	12.20	13.70	10.07	10.60	11.17	11.69	13.19
4H	2H	8.23	8.88	9.32	9.95	11.42	7.88	8.52	8.97	9.60	11.07
	3H	10.10	10.63	11.19	11.73	13.22	9.69	10.22	10.78	11.32	12.81
	4H	10.81	11.30	11.91	12.39	13.90	10.38	10.88	11.49	11.97	13.47
	6H	11.32	11.74	12.43	12.86	14.36	10.89	11.31	12.00	12.43	13.92
	8H	11.47	11.86	12.58	12.97	14.49	11.03	11.43	12.14	12.53	14.05
	12H	11.54	11.90	12.67	13.02	14.54	11.09	11.45	12.22	12.57	14.09
8H	4H	11.00	11.39	12.11	12.50	14.01	10.62	11.01	11.73	12.12	13.64
	6H	11.63	11.95	12.76	13.10	14.61	11.24	11.57	12.38	12.72	14.23
	8H	11.85	12.14	12.99	13.27	14.80	11.46	11.74	12.60	12.87	14.40
	12H	11.98	12.23	13.12	13.36	14.93	11.57	11.82	12.71	12.95	14.51
12H	4H	10.98	11.33	12.10	12.45	13.97	10.61	10.97	11.74	12.09	13.61
	6H	11.66	11.94	12.79	13.07	14.60	11.29	11.57	12.42	12.70	14.23
	8H	11.90	12.15	13.04	13.27	14.84	11.52	11.77	12.66	12.89	14.46