

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: P922732

Luminaire Tested: DFN2DIP-SQ3F0-040D100US940-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P922732
REPORT IS A COMBINATION OF REPORTS P899969 AND P896733
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ3F0-040D100US940-FLLFLL
Description: 3 foot, Square Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

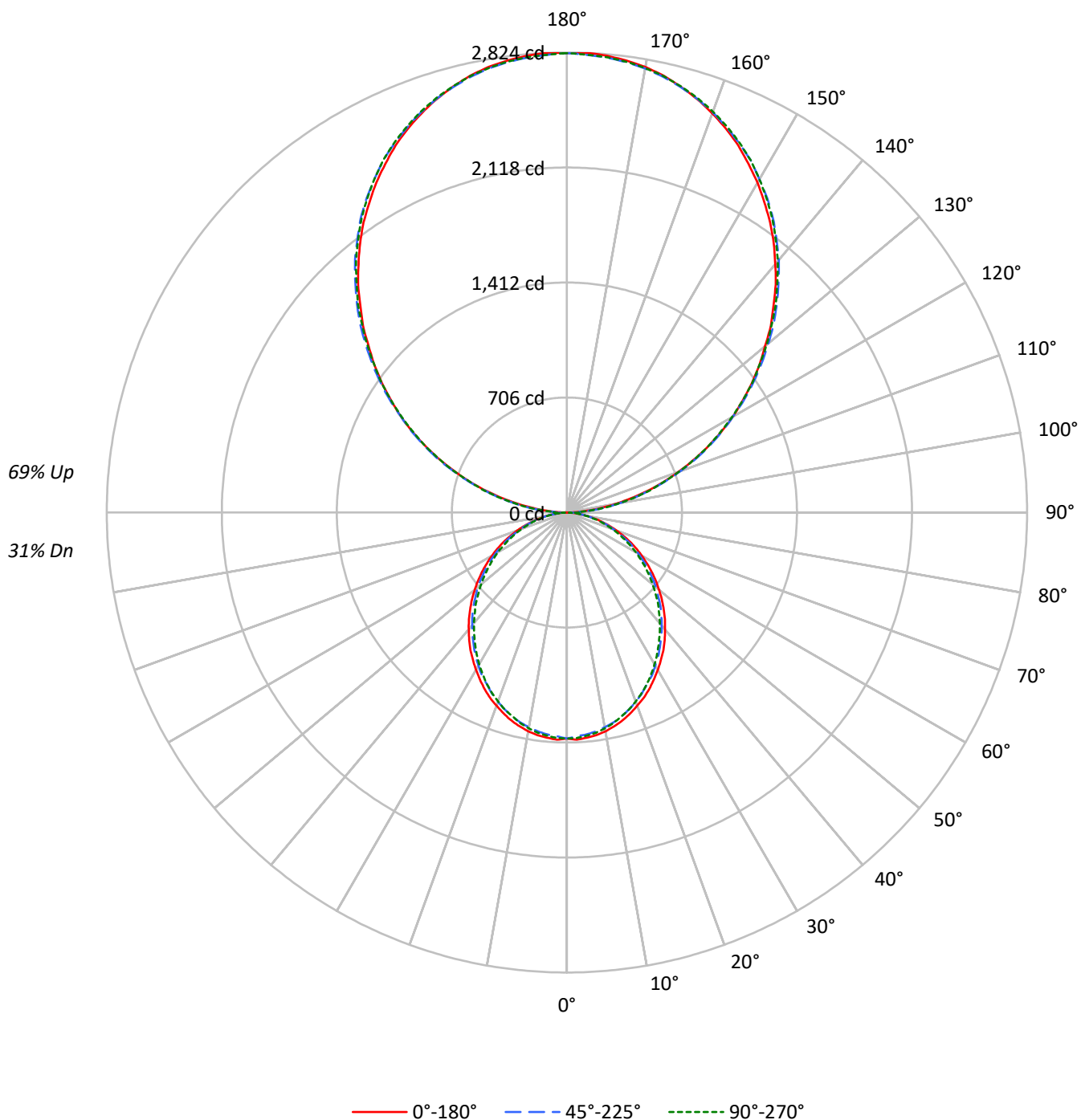
Lumens per Lamp: N/A
Luminaire Lumens: 11422.8 lumens
Efficiency: N/A
Efficacy: 104.0 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.06' x L: 3.06' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 109.8
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9933
Total Harmonic Distortion (THDi): 0.066
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	103	103	103	103	92	92	92	92	73	73	73	55	55	55	39	39	39
1	94	89	86	82	84	80	77	74	64	61	60	48	47	46	34	33	33
2	85	78	72	67	76	70	65	61	56	52	49	42	40	38	30	29	27
3	78	68	61	56	69	62	56	51	49	45	41	37	35	32	27	25	23
4	71	60	53	47	63	55	48	43	44	39	35	33	30	28	24	22	20
5	65	54	46	40	58	49	42	37	39	34	30	30	26	24	21	19	17
6	60	48	40	35	54	44	37	32	35	30	26	27	23	21	19	17	15
7	55	43	36	30	49	39	33	28	32	27	23	24	21	18	18	15	14
8	51	39	32	27	46	36	29	24	29	24	20	22	19	16	16	14	12
9	47	36	28	24	43	32	26	22	26	21	18	20	17	15	15	13	11
10	44	33	26	21	40	30	24	19	24	19	16	19	15	13	14	12	10

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1590	1590	1590
5°	1592	1567	1578
10°	1578	1545	1556
15°	1554	1518	1522
20°	1521	1482	1488
25°	1489	1439	1448
30°	1449	1398	1397
35°	1411	1351	1343
40°	1364	1303	1292
45°	1317	1255	1240
50°	1266	1204	1179
55°	1213	1146	1123
60°	1152	1076	1060
65°	1086	1004	984
70°	1001	917	903
75°	885	811	827
80°	743	677	684
85°	524	448	447

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 2838 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	130.6	1.1
10°-20°	367.5	3.2
20°-30°	540.1	4.7
30°-40°	627.3	5.5
40°-50°	626.6	5.5
50°-60°	546.3	4.8
60°-70°	403.9	3.5
70°-80°	228.5	2.0
80°-90°	68.3	0.6
90°-100°	174.5	1.5
100°-110°	554.5	4.9
110°-120°	948.9	8.3
120°-130°	1247.9	10.9
130°-140°	1400.8	12.3
140°-150°	1373.6	12.0
150°-160°	1152.3	10.1
160°-170°	764.1	6.7
170°-180°	267.1	2.3
0°-30°	1038.3	9.1
0°-40°	1665.6	14.6
0°-60°	2838.5	24.8
0°-90°	3539.2	31.0
90°-120°	1677.9	14.7
90°-150°	5700.1	49.9
90°-180°	7884.0	69.0
0°-180°	11422.8	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1388	1388	1388	1388	1388	
5°	1388	1383	1368	1378	1376	132
15°	1321	1313	1296	1301	1295	372
25°	1196	1185	1162	1165	1162	550
35°	1032	1018	997	989	982	644
45°	840	830	810	796	790	648
55°	635	627	611	595	589	568
65°	428	420	407	395	388	424
75°	224	222	215	207	210	239
85°	55	53	52	48	47	61
90°	3	31	83	78	81	11
95°	124	148	152	152	148	138
105°	512	519	524	528	528	540
115°	952	966	962	959	952	942
125°	1385	1406	1400	1392	1389	1238
135°	1791	1818	1823	1820	1814	1385
145°	2175	2192	2206	2208	2199	1359
155°	2487	2494	2501	2513	2506	1145
165°	2705	2703	2703	2720	2708	763
175°	2815	2808	2803	2820	2806	267
180°	2820	2820	2820	2820	2820	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1387.9	1387.9	1387.9	1387.9	1387.9
2.5°	1396.0	1389.3	1374.6	1387.9	1385.4
5°	1387.9	1382.6	1367.9	1378.5	1376.0
7.5°	1378.5	1370.6	1355.8	1366.6	1364.0
10°	1364.0	1354.6	1338.6	1349.2	1345.2
12.5°	1343.8	1335.9	1319.9	1326.6	1323.8
15°	1321.2	1313.2	1295.8	1301.2	1294.6
17.5°	1293.2	1285.2	1267.8	1274.4	1267.8
20°	1262.4	1254.5	1235.8	1239.7	1234.6
22.5°	1231.8	1219.8	1202.4	1202.4	1199.7
25°	1195.7	1185.1	1162.4	1165.0	1162.4
27.5°	1155.7	1146.3	1129.1	1125.1	1118.5
30°	1115.7	1105.0	1085.0	1081.0	1075.7
32.5°	1073.0	1065.1	1043.7	1035.6	1030.2
35°	1031.6	1018.3	996.9	988.9	982.2
37.5°	984.9	972.9	951.5	942.2	935.5
40°	936.9	926.1	904.7	892.9	887.5
42.5°	890.2	879.4	858.2	844.7	836.8
45°	839.5	830.2	810.0	795.5	790.1
47.5°	790.1	780.7	759.4	744.7	736.7
50°	738.0	731.3	712.7	693.9	687.2
52.5°	687.2	678.0	660.7	646.0	636.6
55°	635.3	627.2	611.3	595.2	588.6
57.5°	583.2	576.6	559.1	543.1	537.8
60°	531.1	525.8	507.2	492.5	488.5
62.5°	480.5	471.1	457.8	444.4	439.1
65°	428.5	420.4	407.1	395.0	388.4
67.5°	375.1	368.3	356.4	347.1	341.7
70°	325.7	320.3	308.3	298.9	293.6
72.5°	275.0	269.6	263.0	253.6	249.6
75°	224.2	221.6	214.8	206.9	209.6
77.5°	178.8	173.4	170.8	166.7	162.8
80°	133.5	132.1	129.4	125.5	122.8
82.5°	90.8	90.8	89.5	84.1	84.1
85°	54.7	53.4	52.1	48.0	46.7
87.5°	24.1	21.4	18.7	14.7	13.3
90°	2.6	30.6	83.3	78.2	80.8
92.5°	52.7	71.4	74.0	76.5	76.5
95°	124.1	147.9	152.2	152.2	147.9
97.5°	206.6	228.7	238.1	238.1	238.1
100°	301.8	321.4	328.1	328.1	325.7
102.5°	402.2	416.6	426.0	428.5	426.0
105°	511.8	518.6	523.7	528.0	528.0
107.5°	620.6	630.9	630.9	632.6	620.6
110°	726.1	739.7	739.7	739.7	732.9

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	840.0	854.4	851.9	845.1	840.0
115°	952.3	965.8	961.6	959.0	952.3
117.5°	1063.6	1082.4	1070.4	1063.6	1056.8
120°	1175.8	1194.5	1175.8	1175.8	1168.2
122.5°	1277.8	1301.6	1289.8	1283.0	1277.8
125°	1385.0	1406.2	1399.5	1391.8	1389.3
127.5°	1489.6	1515.9	1506.5	1496.4	1489.6
130°	1587.3	1617.9	1613.7	1608.6	1599.3
132.5°	1697.0	1720.8	1722.5	1710.7	1703.8
135°	1791.4	1817.8	1822.8	1820.3	1813.5
137.5°	1896.8	1918.1	1922.3	1920.7	1910.4
140°	1989.5	2010.7	2022.7	2022.7	2013.3
142.5°	2084.7	2106.0	2112.7	2115.3	2106.0
145°	2174.8	2191.8	2205.5	2208.0	2198.6
147.5°	2255.6	2276.9	2287.1	2291.3	2282.0
150°	2339.0	2353.4	2362.8	2370.3	2362.8
152.5°	2412.9	2427.3	2439.3	2448.6	2439.3
155°	2486.9	2493.7	2501.3	2513.2	2505.5
157.5°	2550.6	2555.7	2560.0	2577.0	2565.1
160°	2607.6	2612.7	2615.2	2629.7	2619.5
162.5°	2660.3	2660.3	2662.8	2679.0	2667.1
165°	2705.4	2702.8	2702.8	2719.8	2707.9
167.5°	2746.2	2738.5	2738.5	2755.6	2743.6
170°	2776.8	2770.0	2767.4	2784.5	2770.0
172.5°	2798.0	2791.2	2788.6	2805.7	2791.2
175°	2815.0	2808.3	2803.2	2820.1	2805.7
177.5°	2824.4	2817.6	2812.5	2826.9	2812.5
180°	2820.1	2820.1	2820.1	2820.1	2820.1

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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	6.77	7.48	7.87	8.58	10.10	6.32	7.03	7.43	8.13	9.65
	3H	8.41	9.05	9.52	10.16	11.69	7.92	8.56	9.03	9.67	11.20
	4H	8.99	9.59	10.11	10.70	12.25	8.49	9.10	9.62	10.21	11.75
	6H	9.38	9.93	10.51	11.05	12.60	8.88	9.43	10.01	10.55	12.10
	8H	9.47	10.01	10.61	11.13	12.68	8.97	9.50	10.11	10.63	12.18
	12H	9.52	10.02	10.66	11.14	12.71	9.01	9.51	10.15	10.63	12.20
4H	2H	7.20	7.81	8.34	8.92	10.46	6.85	7.46	7.98	8.57	10.11
	3H	9.05	9.56	10.19	10.69	12.25	8.64	9.15	9.78	10.29	11.84
	4H	9.76	10.22	10.90	11.35	12.92	9.33	9.80	10.47	10.92	12.50
	6H	10.26	10.66	11.40	11.80	13.37	9.82	10.22	10.97	11.37	12.94
	8H	10.40	10.77	11.55	11.91	13.50	9.96	10.34	11.11	11.48	13.06
	12H	10.47	10.80	11.63	11.95	13.54	10.02	10.35	11.18	11.51	13.09
8H	4H	9.94	10.31	11.08	11.45	13.03	9.56	9.93	10.70	11.07	12.65
	6H	10.55	10.86	11.72	12.04	13.62	10.17	10.48	11.34	11.66	13.24
	8H	10.77	11.04	11.94	12.20	13.80	10.38	10.65	11.55	11.81	13.41
	12H	10.89	11.13	12.07	12.29	13.92	10.48	10.72	11.66	11.88	13.51
12H	4H	9.91	10.25	11.08	11.40	12.99	9.54	9.88	10.71	11.03	12.62
	6H	10.58	10.85	11.75	12.01	13.61	10.21	10.48	11.38	11.64	13.24
	8H	10.81	11.05	11.99	12.21	13.84	10.43	10.67	11.61	11.83	13.46