

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: P923076

Luminaire Tested: DFN2DIP-SQ4F0-070D080US940-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P923076
REPORT IS A COMBINATION OF REPORTS P900097 AND P896915
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-070D080US940-FLLFLL
Description: 4 foot, Square Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

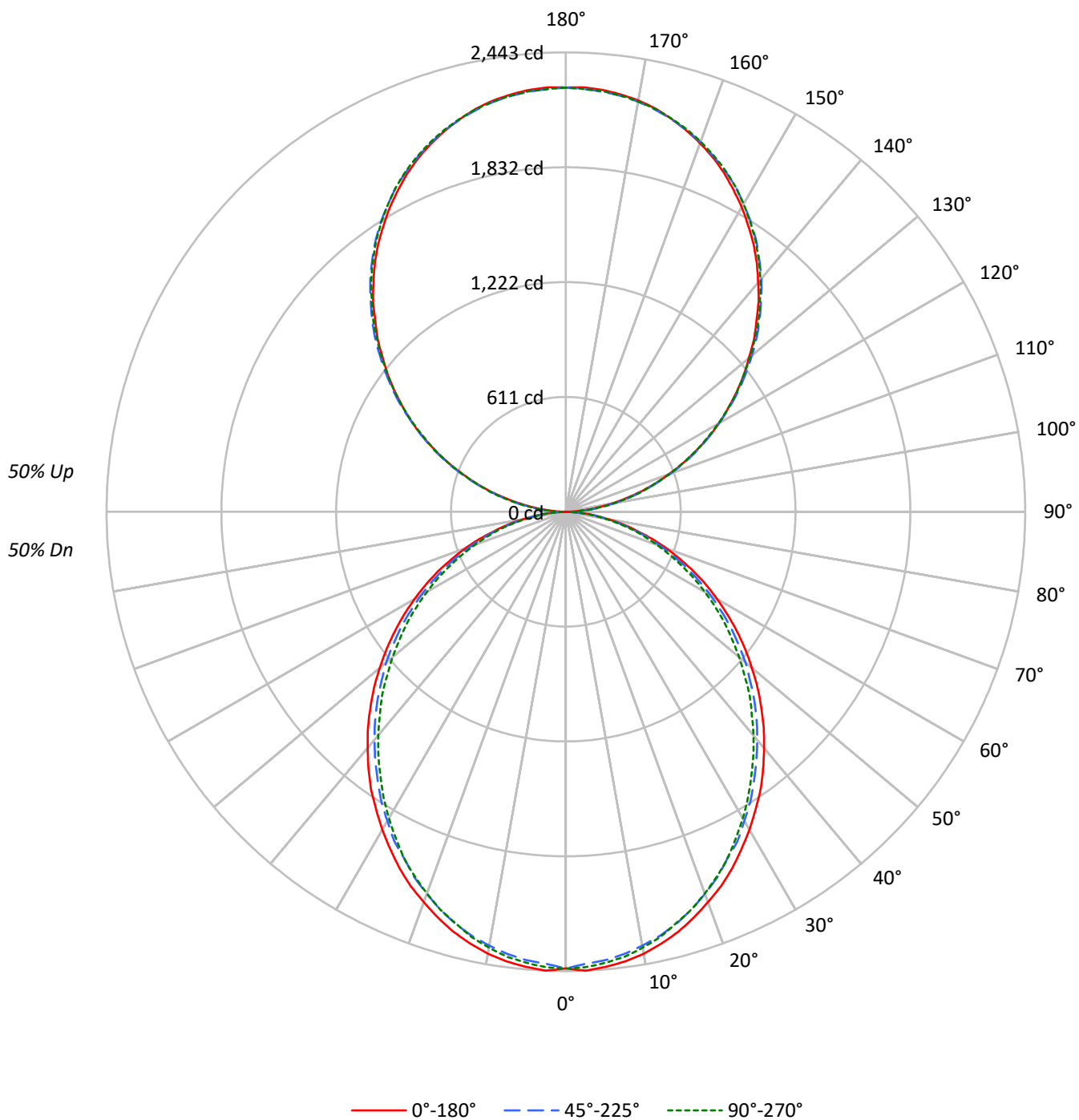
Lumens per Lamp: N/A
Luminaire Lumens: 12492.9 lumens
Efficiency: N/A
Efficacy: 103.4 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 120.8
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
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	93	89	86	90	86	83	80	73	70	68	61	59	57	49	48	47
2	89	82	75	70	82	75	70	66	64	60	56	53	50	48	43	41	40
3	81	72	64	58	74	66	60	55	56	51	47	47	43	40	38	36	34
4	74	63	56	49	68	59	52	46	50	45	40	42	38	35	34	31	29
5	68	57	48	42	63	52	45	40	45	39	35	38	33	30	31	28	25
6	63	51	43	37	58	47	40	35	40	35	30	34	30	26	28	25	22
7	58	46	38	32	53	43	35	30	37	31	27	31	27	23	26	22	20
8	54	42	34	28	50	39	32	27	33	28	24	28	24	21	24	20	18
9	50	38	30	25	46	35	29	24	31	25	21	26	22	19	22	18	16
10	47	35	28	23	43	33	26	22	28	23	19	24	20	17	20	17	15

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: 1775 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	228.6	1.8
10°-20°	643.2	5.1
20°-30°	945.2	7.6
30°-40°	1097.8	8.8
40°-50°	1096.5	8.8
50°-60°	956.1	7.7
60°-70°	706.8	5.7
70°-80°	399.9	3.2
80°-90°	112.0	0.9
90°-100°	139.6	1.1
100°-110°	443.6	3.6
110°-120°	759.1	6.1
120°-130°	998.3	8.0
130°-140°	1120.6	9.0
140°-150°	1098.9	8.8
150°-160°	921.8	7.4
160°-170°	611.3	4.9
170°-180°	213.7	1.7
0°-30°	1817.0	14.5
0°-40°	2914.9	23.3
0°-60°	4967.4	39.8
0°-90°	6186.0	49.5
90°-120°	1342.3	10.7
90°-150°	4560.1	36.5
90°-180°	6307.0	50.5
0°-180°	12492.9	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	24	67	63	65	12
95°	99	118	122	122	118	111
105°	410	415	419	422	422	432
115°	762	773	769	767	762	753
125°	1108	1125	1120	1113	1111	990
135°	1433	1454	1458	1456	1451	1108
145°	1740	1754	1764	1766	1759	1087
155°	1990	1995	2001	2010	2004	916
165°	2164	2162	2162	2176	2166	611
175°	2252	2247	2242	2256	2244	214
180°	2256	2256	2256	2256	2256	

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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°	2.1	24.5	66.7	62.6	64.6
92.5°	42.2	57.2	59.2	61.2	61.2
95°	99.3	118.3	121.7	121.7	118.3
97.5°	165.3	183.0	190.5	190.5	190.5
100°	241.5	257.1	262.5	262.5	260.5
102.5°	321.7	333.3	340.7	342.8	340.7
105°	409.5	414.9	419.0	422.4	422.4
107.5°	496.5	504.7	504.7	506.0	496.5
110°	580.9	591.7	591.7	591.7	586.3

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	672.0	683.6	681.5	676.1	672.0
115°	761.8	772.7	769.3	767.2	761.8
117.5°	850.9	865.9	856.3	850.9	845.4
120°	940.7	955.6	940.7	940.7	934.5
122.5°	1022.3	1041.3	1031.8	1026.4	1022.3
125°	1108.0	1125.0	1119.5	1113.4	1111.4
127.5°	1191.7	1212.7	1205.2	1197.1	1191.7
130°	1269.9	1294.3	1290.9	1286.9	1279.4
132.5°	1357.6	1376.6	1378.0	1368.5	1363.1
135°	1433.1	1454.2	1458.3	1456.3	1450.8
137.5°	1517.4	1534.5	1537.8	1536.5	1528.3
140°	1591.6	1608.6	1618.1	1618.1	1610.6
142.5°	1667.8	1684.8	1690.2	1692.3	1684.8
145°	1739.9	1753.5	1764.3	1766.4	1758.9
147.5°	1804.5	1821.5	1829.6	1833.1	1825.6
150°	1871.2	1882.7	1890.2	1896.3	1890.2
152.5°	1930.3	1941.9	1951.4	1958.9	1951.4
155°	1989.5	1994.9	2001.1	2010.5	2004.5
157.5°	2040.5	2044.6	2048.0	2061.5	2052.1
160°	2086.1	2090.2	2092.2	2103.7	2095.6
162.5°	2128.2	2128.2	2130.3	2143.2	2133.7
165°	2164.3	2162.2	2162.2	2175.9	2166.3
167.5°	2196.9	2190.8	2190.8	2204.4	2194.9
170°	2221.4	2216.0	2213.9	2227.6	2216.0
172.5°	2238.5	2233.0	2231.0	2244.5	2233.0
175°	2252.0	2246.6	2242.5	2256.1	2244.5
177.5°	2259.5	2254.1	2250.0	2261.6	2250.0
180°	2256.1	2256.1	2256.1	2256.1	2256.1

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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	9.09	9.95	10.05	10.92	12.20	8.65	9.50	9.61	10.48	11.76
	3H	10.75	11.52	11.73	12.51	13.81	10.26	11.03	11.24	12.02	13.32
	4H	11.34	12.07	12.33	13.06	14.37	10.85	11.58	11.84	12.57	13.88
	6H	11.75	12.42	12.75	13.41	14.73	11.25	11.92	12.24	12.91	14.23
	8H	11.85	12.49	12.86	13.50	14.82	11.35	11.99	12.36	13.00	14.32
	12H	11.90	12.51	12.91	13.52	14.86	11.39	12.00	12.40	13.01	14.35
4H	2H	9.55	10.28	10.54	11.27	12.58	9.20	9.92	10.19	10.91	12.22
	3H	11.42	12.03	12.42	13.05	14.37	11.01	11.62	12.01	12.64	13.96
	4H	12.14	12.69	13.15	13.71	15.05	11.72	12.27	12.72	13.28	14.63
	6H	12.66	13.14	13.68	14.17	15.51	12.23	12.70	13.25	13.74	15.08
	8H	12.81	13.26	13.83	14.28	15.64	12.37	12.82	13.39	13.85	15.20
	12H	12.89	13.29	13.93	14.33	15.69	12.44	12.84	13.48	13.88	15.25
8H	4H	12.34	12.78	13.36	13.81	15.17	11.96	12.41	12.98	13.43	14.79
	6H	12.97	13.34	14.02	14.41	15.77	12.59	12.96	13.63	14.03	15.38
	8H	13.20	13.52	14.25	14.57	15.95	12.80	13.13	13.86	14.18	15.56
	12H	13.33	13.62	14.39	14.67	16.08	12.92	13.20	13.98	14.25	15.67
12H	4H	12.32	12.73	13.36	13.77	15.13	11.95	12.36	12.99	13.40	14.76
	6H	13.00	13.33	14.06	14.38	15.76	12.63	12.96	13.68	14.01	15.38
	8H	13.25	13.53	14.30	14.58	16.00	12.87	13.15	13.92	14.20	15.62