

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: P914868

Luminaire Tested: DFN2DIP-SQ4F0-060D110US927-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P914868
REPORT IS A COMBINATION OF REPORTS P900149 AND P896915
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-060D110US927-FLLFLL
Description: 4 foot, Square Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

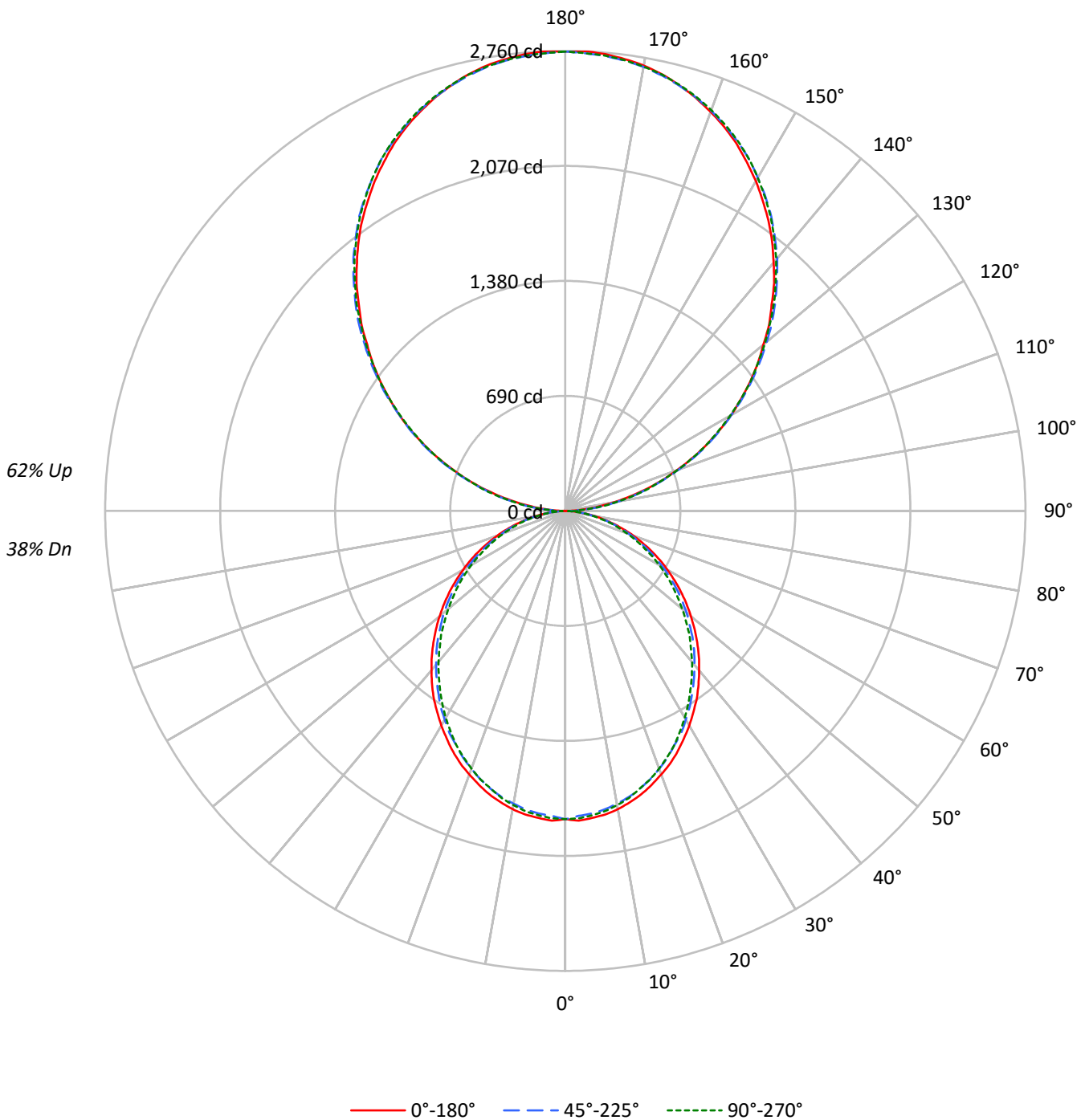
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 12417.4 lumens
Efficiency: N/A
Efficacy: 93.5 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): 132.8
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.946
Total Harmonic Distortion (THDi): 0.132
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	95	95	95	95	77	77	77	60	60	60	45	45	45	38				38
1	95	91	87	84	86	83	79	76	67	65	63	53	51	50	40	39	38	32				32
2	87	79	73	68	78	72	67	63	59	55	52	46	44	42	35	33	32	27				27
3	79	70	62	57	71	63	57	52	52	47	44	41	38	35	31	29	27	23				23
4	72	62	54	48	65	56	49	44	46	41	37	37	33	30	28	25	23	19				19
5	66	55	47	41	60	50	43	38	41	36	32	33	29	26	25	22	20	17				17
6	61	49	41	35	55	45	38	33	37	32	28	30	26	23	23	20	18	15				15
7	56	44	36	31	51	41	34	29	33	28	24	27	23	20	21	18	16	13				13
8	52	40	32	27	47	37	30	25	30	25	22	25	21	18	19	16	14	12				12
9	48	37	29	24	44	34	27	23	28	23	19	23	19	16	17	15	13	11				11
10	45	33	26	22	41	31	24	20	26	21	17	21	17	14	16	14	12	10				10

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1298	1298	1298
5°	1300	1280	1289
10°	1289	1263	1272
15°	1270	1242	1245
20°	1245	1214	1217
25°	1219	1179	1185
30°	1187	1148	1145
35°	1157	1110	1101
40°	1120	1072	1061
45°	1082	1034	1019
50°	1042	994	970
55°	999	948	926
60°	951	893	875
65°	899	836	815
70°	832	767	750
75°	739	684	691
80°	628	579	577
85°	454	396	388

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°
 Vertical Angle: 90°
 Luminance: 2168 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	174.1	1.4
10°-20°	489.8	3.9
20°-30°	719.8	5.8
30°-40°	836.0	6.7
40°-50°	834.9	6.7
50°-60°	728.0	5.9
60°-70°	538.2	4.3
70°-80°	304.5	2.5
80°-90°	88.2	0.7
90°-100°	170.5	1.4
100°-110°	541.8	4.4
110°-120°	927.3	7.5
120°-130°	1219.5	9.8
130°-140°	1368.8	11.0
140°-150°	1342.3	10.8
150°-160°	1126.0	9.1
160°-170°	746.7	6.0
170°-180°	261.0	2.1
0°-30°	1383.6	11.1
0°-40°	2219.6	17.9
0°-60°	3782.5	30.5
0°-90°	4713.4	38.0
90°-120°	1639.7	13.2
90°-150°	5570.3	44.9
90°-180°	7704.0	62.0
0°-180°	12417.4	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1849	1849	1849	1849	1849	
5°	1849	1842	1823	1837	1834	176
15°	1760	1750	1727	1734	1725	496
25°	1593	1579	1549	1552	1549	733
35°	1375	1357	1328	1318	1309	858
45°	1119	1106	1079	1060	1053	863
55°	847	836	814	793	784	757
65°	571	560	542	526	518	564
75°	299	295	286	276	279	319
85°	73	71	69	64	62	81
90°	2	30	81	76	79	12
95°	121	145	149	149	145	135
105°	500	507	512	516	516	528
115°	931	944	940	937	931	920
125°	1353	1374	1368	1360	1358	1209
135°	1751	1776	1781	1779	1772	1353
145°	2125	2142	2155	2158	2149	1328
155°	2430	2437	2444	2456	2448	1119
165°	2644	2641	2641	2658	2646	746
175°	2751	2744	2739	2756	2742	261
180°	2756	2756	2756	2756	2756	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1849.4	1849.4	1849.4	1849.4	1849.4
2.5°	1860.2	1851.3	1831.7	1849.4	1846.0
5°	1849.4	1842.5	1822.8	1837.0	1833.6
7.5°	1837.0	1826.5	1806.8	1821.1	1817.6
10°	1817.6	1805.1	1783.8	1797.9	1792.6
12.5°	1790.8	1780.2	1758.9	1767.8	1764.2
15°	1760.5	1750.0	1726.8	1734.0	1725.1
17.5°	1723.2	1712.7	1689.5	1698.3	1689.5
20°	1682.3	1671.7	1646.8	1652.1	1645.1
22.5°	1641.6	1625.5	1602.3	1602.3	1598.7
25°	1593.4	1579.3	1549.0	1552.4	1549.0
27.5°	1540.0	1527.6	1504.5	1499.3	1490.4
30°	1486.8	1472.4	1445.9	1440.6	1433.4
32.5°	1429.8	1419.3	1390.8	1380.0	1372.8
35°	1374.8	1357.0	1328.5	1317.7	1308.8
37.5°	1312.5	1296.4	1268.0	1255.4	1246.6
40°	1248.5	1234.1	1205.7	1189.9	1182.6
42.5°	1186.2	1171.9	1143.6	1125.7	1115.1
45°	1118.7	1106.2	1079.4	1060.0	1052.8
47.5°	1052.8	1040.4	1011.9	992.3	981.7
50°	983.4	974.5	949.7	924.7	915.8
52.5°	915.8	903.4	880.4	860.8	848.3
55°	846.6	835.8	814.5	793.2	784.3
57.5°	777.2	768.3	745.1	723.8	716.6
60°	707.7	700.8	675.9	656.2	650.9
62.5°	640.2	627.7	610.0	592.2	585.1
65°	570.9	560.2	542.5	526.4	517.5
67.5°	499.8	490.8	474.9	462.5	455.3
70°	434.0	426.8	410.7	398.3	391.3
72.5°	366.4	359.3	350.4	337.9	332.6
75°	298.7	295.3	286.2	275.7	279.2
77.5°	238.3	231.2	227.5	222.3	217.0
80°	177.9	176.0	172.5	167.2	163.6
82.5°	121.0	121.0	119.2	112.1	112.1
85°	72.8	71.1	69.4	63.9	62.3
87.5°	32.1	28.5	24.9	19.6	17.7
90°	2.5	29.9	81.4	76.4	78.9
92.5°	51.5	69.8	72.2	74.8	74.8
95°	121.3	144.6	148.7	148.7	144.6
97.5°	201.9	223.5	232.7	232.7	232.7
100°	294.9	314.0	320.7	320.7	318.2
102.5°	393.0	407.1	416.3	418.7	416.3
105°	500.2	506.8	511.8	515.9	515.9
107.5°	606.5	616.5	616.5	618.1	606.5
110°	709.6	722.9	722.9	722.9	716.2



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	820.9	835.0	832.5	825.8	820.9
115°	930.6	943.8	939.7	937.2	930.6
117.5°	1039.4	1057.6	1046.0	1039.4	1032.8
120°	1149.1	1167.4	1149.1	1149.1	1141.6
122.5°	1248.8	1272.0	1260.4	1253.7	1248.8
125°	1353.4	1374.2	1367.5	1360.1	1357.6
127.5°	1455.6	1481.4	1472.3	1462.3	1455.6
130°	1551.2	1581.1	1576.9	1571.9	1562.8
132.5°	1658.4	1681.6	1683.3	1671.7	1665.0
135°	1750.6	1776.3	1781.3	1778.8	1772.2
137.5°	1853.6	1874.4	1878.5	1876.8	1866.9
140°	1944.2	1964.9	1976.6	1976.6	1967.5
142.5°	2037.3	2058.0	2064.7	2067.1	2058.0
145°	2125.3	2141.9	2155.2	2157.7	2148.6
147.5°	2204.2	2225.0	2235.0	2239.1	2230.0
150°	2285.7	2299.8	2308.9	2316.4	2308.9
152.5°	2357.9	2372.0	2383.7	2392.9	2383.7
155°	2430.3	2436.8	2444.4	2456.0	2448.5
157.5°	2492.5	2497.5	2501.6	2518.3	2506.6
160°	2548.2	2553.2	2555.7	2569.8	2559.9
162.5°	2599.7	2599.7	2602.2	2618.0	2606.4
165°	2643.7	2641.2	2641.2	2657.8	2646.2
167.5°	2683.6	2676.1	2676.1	2692.8	2681.1
170°	2713.5	2706.9	2704.4	2721.0	2706.9
172.5°	2734.3	2727.6	2725.2	2741.8	2727.6
175°	2750.9	2744.3	2739.3	2755.9	2741.8
177.5°	2760.0	2753.4	2748.4	2762.6	2748.4
180°	2755.9	2755.9	2755.9	2755.9	2755.9



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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	6.96	7.72	8.01	8.78	10.21	6.52	7.28	7.57	8.34	9.77
	3H	8.62	9.30	9.68	10.37	11.82	8.13	8.81	9.19	9.88	11.33
	4H	9.20	9.85	10.28	10.92	12.38	8.71	9.36	9.78	10.43	11.88
	6H	9.60	10.20	10.69	11.27	12.74	9.10	9.70	10.19	10.77	12.24
	8H	9.70	10.27	10.79	11.36	12.83	9.20	9.77	10.29	10.86	12.32
	12H	9.75	10.29	10.85	11.37	12.86	9.24	9.78	10.34	10.86	12.35
4H	2H	7.41	8.06	8.49	9.13	10.58	7.05	7.70	8.14	8.77	10.23
	3H	9.27	9.81	10.36	10.91	12.38	8.86	9.40	9.95	10.50	11.97
	4H	9.98	10.48	11.08	11.57	13.06	9.56	10.06	10.65	11.14	12.64
	6H	10.50	10.92	11.60	12.03	13.52	10.07	10.49	11.17	11.60	13.09
	8H	10.65	11.05	11.75	12.15	13.65	10.21	10.61	11.31	11.71	13.21
	12H	10.72	11.08	11.84	12.19	13.70	10.27	10.63	11.39	11.74	13.25
8H	4H	10.17	10.57	11.28	11.67	13.17	9.80	10.19	10.90	11.30	12.80
	6H	10.81	11.13	11.93	12.28	13.78	10.42	10.75	11.55	11.89	13.39
	8H	11.03	11.32	12.16	12.44	13.96	10.64	10.92	11.77	12.05	13.57
	12H	11.16	11.41	12.29	12.53	14.09	10.75	11.00	11.88	12.12	13.68
12H	4H	10.15	10.51	11.27	11.63	13.14	9.79	10.15	10.91	11.26	12.77
	6H	10.83	11.12	11.97	12.25	13.77	10.46	10.75	11.59	11.88	13.39
	8H	11.08	11.33	12.21	12.45	14.00	10.70	10.95	11.83	12.07	13.62