

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: P917244

Luminaire Tested: DFN2DIP-SQ2F0-080D070US930-FLLFLL

Issue Date: 11/21/2024

**Test Information**

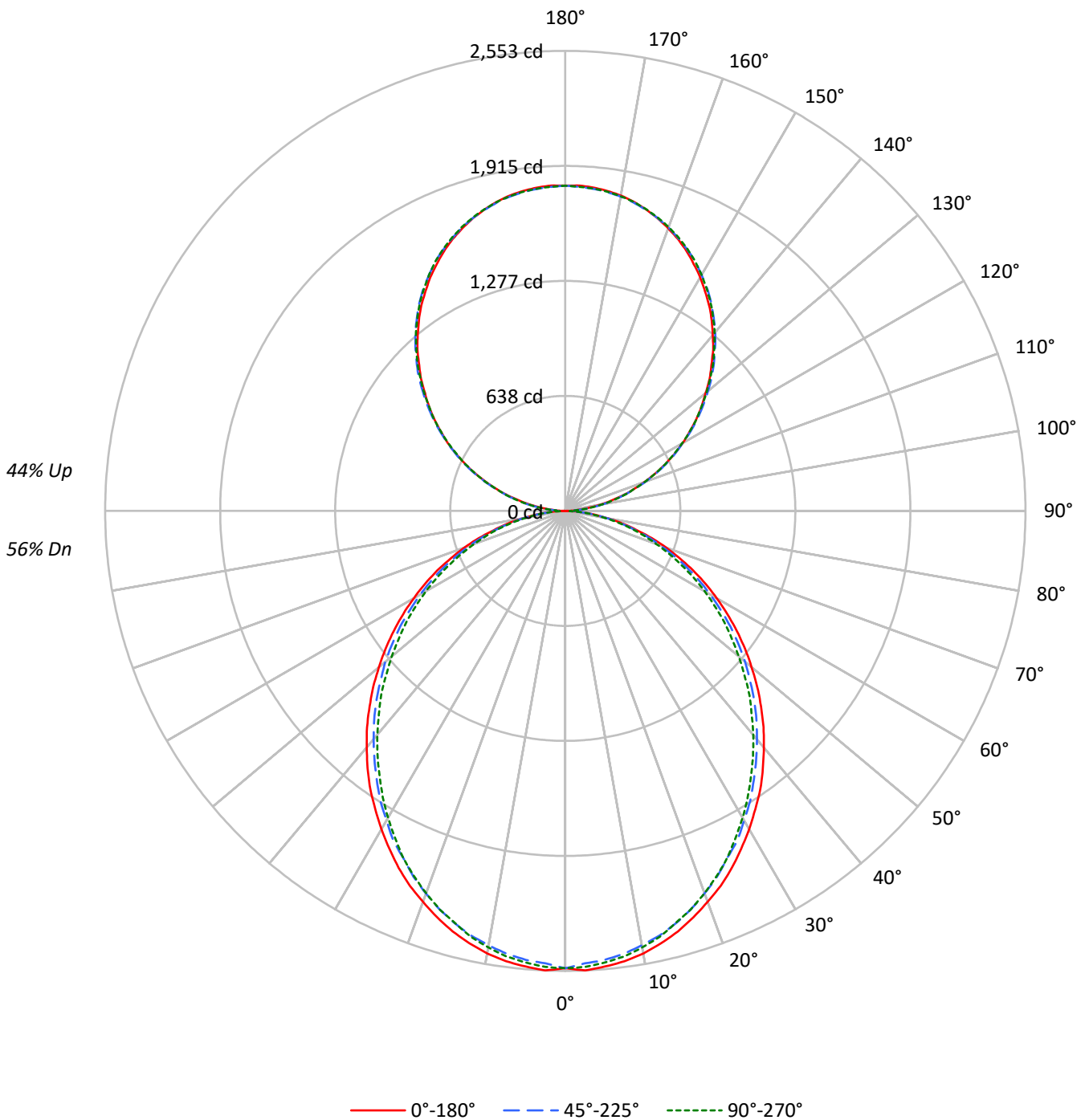
Test Method: LM-79-2019  
Report Number: P917244  
REPORT IS A COMBINATION OF REPORTS P899829 AND P896659  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-SQ2F0-080D070US930-FLLFL  
Description: 2 foot, Square Define Geo, with Direct Frosted Lens, Indirect Frosted Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 11508.0 lumens  
Efficiency: N/A  
Efficacy: 86.3 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29  
Luminous Opening: Rectangular w/ Sides (W: 2.21' x L: 2.21' x H: 0.1')  
CIE Type: General Diffuse  
  
Input Watts (W): 133.4  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.9957  
Total Harmonic Distortion (THDi): 0.049  
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	0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	0
RCR																		
0	109	109	109	109	101	101	101	101	87	87	87	74	74	74	62	62	62	56
1	99	95	91	87	92	88	85	82	76	74	71	65	63	61	55	53	52	47
2	90	83	77	71	84	77	72	67	67	63	59	57	54	51	48	46	44	40
3	82	73	65	59	76	68	61	56	59	54	50	50	47	43	43	40	37	34
4	75	64	56	50	70	60	53	48	52	47	42	45	41	37	38	35	32	29
5	69	57	49	43	64	54	46	41	47	41	37	40	36	32	34	31	28	25
6	64	52	43	38	59	48	41	36	42	36	32	37	32	28	31	28	25	22
7	59	47	39	33	55	44	37	31	38	32	28	33	29	25	28	25	22	20
8	55	42	35	29	51	40	33	28	35	29	25	30	26	22	26	23	20	17
9	51	39	31	26	47	36	30	25	32	26	23	28	23	20	24	21	18	16
10	48	36	28	23	44	34	27	22	30	24	20	26	21	18	22	19	16	14

**AVERAGE LUMINANCE (cd/sqm):**

	0°	45°	90°
0°	5581	5581	5581
5°	5580	5491	5532
10°	5525	5405	5449
15°	5434	5303	5325
20°	5314	5168	5197
25°	5195	5008	5051
30°	5049	4858	4867
35°	4908	4684	4673
40°	4738	4507	4488
45°	4567	4329	4299
50°	4381	4142	4080
55°	4184	3927	3876
60°	3961	3672	3643
65°	3716	3406	3369
70°	3406	3083	3071
75°	2980	2694	2786
80°	2461	2200	2263
85°	1664	1389	1421

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 4567 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	238.9	2.1
10°-20°	672.1	5.8
20°-30°	987.7	8.6
30°-40°	1147.1	10.0
40°-50°	1145.7	10.0
50°-60°	999.0	8.7
60°-70°	738.5	6.4
70°-80°	417.8	3.6
80°-90°	115.4	1.0
90°-100°	111.7	1.0
100°-110°	354.9	3.1
110°-120°	607.3	5.3
120°-130°	798.7	6.9
130°-140°	896.5	7.8
140°-150°	879.1	7.6
150°-160°	737.5	6.4
160°-170°	489.1	4.2
170°-180°	170.9	1.5
0°-30°	1898.6	16.5
0°-40°	3045.8	26.5
0°-60°	5190.5	45.1
0°-90°	6462.3	56.2
90°-120°	1073.9	9.3
90°-150°	3648.2	31.7
90°-180°	5046.0	43.8
0°-180°	11508.0	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	2538	2538	2538	2538	2538	
5°	2538	2528	2501	2521	2516	241
15°	2416	2402	2370	2379	2367	680
25°	2186	2167	2126	2130	2126	1006
35°	1886	1862	1823	1808	1796	1178
45°	1535	1518	1481	1455	1445	1185
55°	1162	1147	1118	1088	1076	1039
65°	784	769	744	722	710	775
75°	410	405	393	378	383	438
85°	100	98	95	88	85	112
90°	2	20	53	50	52	11
95°	79	95	97	97	95	88
105°	328	332	335	338	338	346
115°	609	618	616	614	609	603
125°	886	900	896	891	889	792
135°	1147	1163	1167	1165	1161	886
145°	1392	1403	1412	1413	1407	870
155°	1592	1596	1601	1608	1604	733
165°	1731	1730	1730	1741	1733	488
175°	1802	1797	1794	1805	1796	171
180°	1805	1805	1805	1805	1805	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	2537.9	2537.9	2537.9	2537.9	2537.9
2.5°	2552.6	2540.5	2513.6	2537.9	2533.2
5°	2537.9	2528.3	2501.4	2520.8	2516.2
7.5°	2520.8	2506.3	2479.4	2499.1	2494.2
10°	2494.2	2477.0	2447.8	2467.2	2460.0
12.5°	2457.4	2442.9	2413.6	2425.8	2420.9
15°	2416.0	2401.5	2369.6	2379.4	2367.3
17.5°	2364.7	2350.2	2318.3	2330.5	2318.3
20°	2308.5	2294.0	2259.8	2267.1	2257.5
22.5°	2252.6	2230.6	2198.7	2198.7	2193.8
25°	2186.5	2167.1	2125.7	2130.4	2125.7
27.5°	2113.3	2096.2	2064.6	2057.3	2045.2
30°	2040.3	2020.6	1984.1	1976.9	1967.0
32.5°	1962.1	1947.6	1908.5	1893.7	1883.9
35°	1886.4	1862.1	1823.0	1808.2	1796.1
37.5°	1801.0	1779.0	1739.9	1722.8	1710.7
40°	1713.3	1693.5	1654.5	1632.7	1622.9
42.5°	1627.8	1608.1	1569.3	1544.7	1530.2
45°	1535.1	1518.0	1481.2	1454.6	1444.8
47.5°	1444.8	1427.7	1388.5	1361.6	1347.1
50°	1349.5	1337.3	1303.1	1268.9	1256.8
52.5°	1256.8	1239.7	1208.1	1181.2	1164.1
55°	1161.7	1147.0	1117.8	1088.5	1076.3
57.5°	1066.5	1054.3	1022.5	993.2	983.3
60°	971.2	961.6	927.4	900.5	893.2
62.5°	878.5	861.4	837.1	812.8	802.9
65°	783.5	768.7	744.4	722.4	710.2
67.5°	685.8	673.4	651.7	634.6	624.8
70°	595.5	585.6	563.7	546.6	537.0
72.5°	502.8	493.0	480.8	463.7	456.5
75°	409.9	405.2	392.8	378.3	383.2
77.5°	327.0	317.2	312.3	305.0	297.7
80°	244.2	241.6	236.7	229.4	224.5
82.5°	166.0	166.0	163.6	153.8	153.8
85°	100.0	97.6	95.3	87.8	85.4
87.5°	44.0	39.1	34.2	26.9	24.4
90°	1.6	19.6	53.3	50.1	51.7
92.5°	33.8	45.7	47.4	49.0	49.0
95°	79.4	94.7	97.4	97.4	94.7
97.5°	132.2	146.3	152.4	152.4	152.4
100°	193.1	205.7	210.0	210.0	208.4
102.5°	257.4	266.6	272.6	274.3	272.6
105°	327.6	331.9	335.2	337.9	337.9
107.5°	397.2	403.7	403.7	404.9	397.2
110°	464.7	473.4	473.4	473.4	469.0



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**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	537.6	546.9	545.3	540.9	537.6
115°	609.4	618.2	615.5	613.8	609.4
117.5°	680.7	692.7	685.1	680.7	676.4
120°	752.5	764.5	752.5	752.5	747.6
122.5°	817.8	833.1	825.5	821.1	817.8
125°	886.4	900.0	895.7	890.8	889.2
127.5°	953.3	970.2	964.3	957.7	953.3
130°	1015.9	1035.5	1032.8	1029.6	1023.5
132.5°	1086.1	1101.4	1102.4	1094.9	1090.5
135°	1146.6	1163.3	1166.7	1165.0	1160.7
137.5°	1214.0	1227.6	1230.3	1229.2	1222.7
140°	1273.3	1286.9	1294.5	1294.5	1288.6
142.5°	1334.2	1347.9	1352.2	1353.8	1347.9
145°	1392.0	1402.8	1411.5	1413.2	1407.2
147.5°	1443.6	1457.3	1463.8	1466.5	1460.5
150°	1497.0	1506.2	1512.2	1517.1	1512.2
152.5°	1544.3	1553.6	1561.1	1567.2	1561.1
155°	1591.6	1595.9	1600.9	1608.5	1603.6
157.5°	1632.5	1635.7	1638.4	1649.3	1641.7
160°	1668.9	1672.2	1673.8	1683.0	1676.5
162.5°	1702.7	1702.7	1704.3	1714.6	1707.0
165°	1731.4	1729.8	1729.8	1740.7	1733.1
167.5°	1757.6	1752.7	1752.7	1763.6	1756.0
170°	1777.2	1772.9	1771.2	1782.1	1772.9
172.5°	1790.8	1786.4	1784.8	1795.7	1786.4
175°	1801.6	1797.3	1794.1	1804.9	1795.7
177.5°	1807.7	1803.3	1800.0	1809.3	1800.0
180°	1804.9	1804.9	1804.9	1804.9	1804.9



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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	13.68	14.60	14.58	15.52	16.70	13.23	14.15	14.14	15.08	16.26
	3H	15.32	16.15	16.24	17.08	18.29	14.83	15.66	15.75	16.59	17.80
	4H	15.90	16.68	16.83	17.62	18.83	15.41	16.19	16.34	17.13	18.34
	6H	16.29	17.01	17.23	17.95	19.18	15.79	16.51	16.73	17.45	18.68
	8H	16.39	17.07	17.34	18.03	19.26	15.89	16.57	16.84	17.53	18.76
	12H	16.43	17.08	17.39	18.04	19.29	15.92	16.58	16.88	17.53	18.78
4H	2H	14.14	14.92	15.07	15.85	17.07	13.78	14.56	14.72	15.50	16.71
	3H	15.98	16.64	16.93	17.60	18.83	15.58	16.23	16.52	17.19	18.42
	4H	16.69	17.28	17.64	18.24	19.50	16.26	16.86	17.22	17.82	19.07
	6H	17.19	17.70	18.15	18.68	19.94	16.75	17.27	17.72	18.25	19.50
	8H	17.33	17.81	18.30	18.79	20.05	16.89	17.37	17.86	18.35	19.62
	12H	17.39	17.83	18.38	18.82	20.09	16.95	17.38	17.93	18.37	19.65
8H	4H	16.88	17.35	17.85	18.33	19.60	16.50	16.98	17.47	17.96	19.22
	6H	17.49	17.88	18.48	18.90	20.17	17.10	17.50	18.10	18.52	19.78
	8H	17.69	18.04	18.70	19.05	20.34	17.30	17.65	18.30	18.66	19.94
	12H	17.81	18.12	18.82	19.13	20.45	17.40	17.71	18.41	18.71	20.04
12H	4H	16.86	17.29	17.85	18.29	19.56	16.49	16.92	17.48	17.92	19.19
	6H	17.51	17.86	18.51	18.87	20.15	17.14	17.49	18.14	18.50	19.78
	8H	17.74	18.05	18.75	19.05	20.38	17.36	17.67	18.37	18.67	20.00