

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: P917148

Luminaire Tested: DFN2DIP-SQ2F0-040D070US930-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P917148
REPORT IS A COMBINATION OF REPORTS P899821 AND P896659
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ2F0-040D070US930-FLLFLL
Description: 2 foot, Square Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

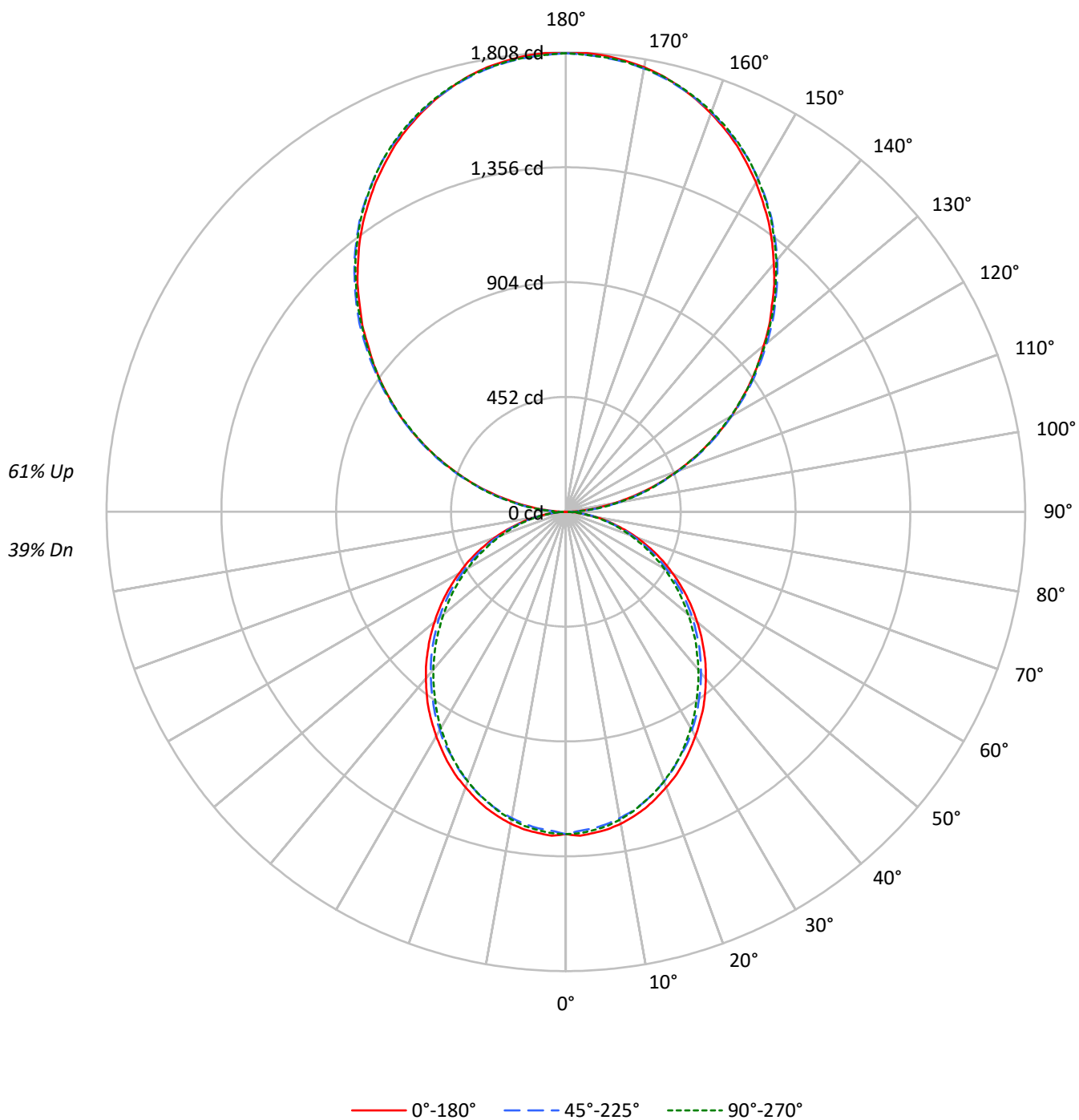
Lumens per Lamp: N/A
Luminaire Lumens: 8279.4 lumens
Efficiency: N/A
Efficacy: 93.9 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 2.21' x L: 2.21' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 88.2
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9952
Total Harmonic Distortion (THDi): 0.069
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P917148

CATALOG NUMBER: DFN2DIP-SQ2F0-040D070US930-FLLFLL

Luminous Intensity Polar Plot



TEST NUMBER: P917148

CATALOG NUMBER: DFN2DIP-SQ2F0-040D070US930-FLLFL

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	105	105	105	105	95	95	95	95	77	77	77	61	61	61	46	46	46
1	95	91	87	84	86	83	80	77	68	65	63	54	52	51	41	40	39
2	87	79	73	68	79	72	67	63	59	56	52	47	45	42	36	34	33
3	79	70	63	57	72	64	58	53	52	48	44	42	38	36	32	30	28
4	72	62	54	48	65	56	50	44	46	41	37	37	33	31	28	26	24
5	66	55	47	41	60	50	43	38	41	36	32	33	29	26	26	23	21
6	61	49	41	36	55	45	38	33	37	32	28	30	26	23	23	20	18
7	56	44	37	31	51	41	34	29	34	28	25	27	23	20	21	18	16
8	52	40	33	27	47	37	30	26	31	26	22	25	21	18	19	17	15
9	49	37	29	24	44	34	27	23	28	23	19	23	19	16	18	15	13
10	45	34	26	22	41	31	25	20	26	21	18	21	17	15	17	14	12

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2790	2790	2790
5°	2790	2745	2766
10°	2763	2702	2725
15°	2717	2652	2662
20°	2657	2584	2599
25°	2598	2504	2525
30°	2524	2429	2434
35°	2454	2342	2337
40°	2369	2254	2244
45°	2283	2165	2149
50°	2190	2071	2040
55°	2092	1963	1938
60°	1981	1836	1821
65°	1858	1703	1684
70°	1703	1541	1536
75°	1490	1347	1393
80°	1231	1099	1132
85°	832	694	710

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 2515 cd/sqm

TEST NUMBER: P917148

CATALOG NUMBER: DFN2DIP-SQ2F0-040D070US930-FLLFLL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	119.4	1.4
10°-20°	336.0	4.1
20°-30°	493.8	6.0
30°-40°	573.6	6.9
40°-50°	572.9	6.9
50°-60°	499.5	6.0
60°-70°	369.3	4.5
70°-80°	208.9	2.5
80°-90°	60.3	0.7
90°-100°	111.7	1.3
100°-110°	354.9	4.3
110°-120°	607.3	7.3
120°-130°	798.7	9.6
130°-140°	896.5	10.8
140°-150°	879.1	10.6
150°-160°	737.5	8.9
160°-170°	489.1	5.9
170°-180°	170.9	2.1
0°-30°	949.3	11.5
0°-40°	1522.9	18.4
0°-60°	2595.3	31.3
0°-90°	3233.7	39.1
90°-120°	1073.9	13.0
90°-150°	3648.2	44.1
90°-180°	5046.0	60.9
0°-180°	8279.4	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1269	1269	1269	1269	1269	
5°	1269	1264	1251	1260	1258	120
15°	1208	1201	1185	1190	1184	340
25°	1093	1084	1063	1065	1063	503
35°	943	931	912	904	898	589
45°	768	759	741	727	722	592
55°	581	574	559	544	538	519
65°	392	384	372	361	355	387
75°	205	203	196	189	192	219
85°	50	49	48	44	43	56
90°	2	20	53	50	52	8
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	

TEST NUMBER: P917148

CATALOG NUMBER: DFN2DIP-SQ2F0-040D070US930-FLLFLL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1268.9	1268.9	1268.9	1268.9	1268.9
2.5°	1276.3	1270.2	1256.8	1268.9	1266.6
5°	1268.9	1264.1	1250.7	1260.4	1258.1
7.5°	1260.4	1253.1	1239.7	1249.5	1247.1
10°	1247.1	1238.5	1223.9	1233.6	1230.0
12.5°	1228.7	1221.4	1206.8	1212.9	1210.4
15°	1207.9	1200.7	1184.8	1189.7	1183.6
17.5°	1182.3	1175.1	1159.2	1165.2	1159.2
20°	1154.2	1147.0	1129.9	1133.5	1128.8
22.5°	1126.3	1115.2	1099.3	1099.3	1096.9
25°	1093.2	1083.5	1062.8	1065.2	1062.8
27.5°	1056.6	1048.1	1032.3	1028.7	1022.6
30°	1020.1	1010.3	992.1	988.4	983.5
32.5°	981.0	973.8	954.2	946.9	941.9
35°	943.2	931.1	911.5	904.2	898.1
37.5°	900.5	889.5	869.9	861.4	855.3
40°	856.6	846.8	827.2	816.4	811.5
42.5°	813.9	804.0	784.6	772.3	765.1
45°	767.5	759.0	740.6	727.3	722.4
47.5°	722.4	713.8	694.3	680.9	673.6
50°	674.7	668.6	651.6	634.5	628.4
52.5°	628.4	619.9	604.1	590.6	582.0
55°	580.9	573.5	558.9	544.2	538.2
57.5°	533.2	527.2	511.2	496.6	491.7
60°	485.6	480.8	463.7	450.3	446.6
62.5°	439.3	430.7	418.6	406.3	401.5
65°	391.8	384.3	372.2	361.2	355.1
67.5°	342.9	336.7	325.9	317.3	312.4
70°	297.7	292.9	281.8	273.3	268.5
72.5°	251.4	246.5	240.4	231.9	228.2
75°	205.0	202.6	196.4	189.1	191.6
77.5°	163.5	158.6	156.1	152.5	148.9
80°	122.1	120.7	118.3	114.7	112.3
82.5°	83.0	83.0	81.9	76.9	76.9
85°	50.0	48.8	47.6	43.9	42.7
87.5°	22.0	19.6	17.1	13.5	12.1
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

TEST NUMBER: P917148

CATALOG NUMBER: DFN2DIP-SQ2F0-040D070US930-FLLFLL

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	9.62	10.39	10.66	11.44	12.86	9.17	9.94	10.22	10.99	12.41
	3H	11.25	11.94	12.30	13.00	14.44	10.76	11.45	11.81	12.51	13.95
	4H	11.82	12.48	12.89	13.54	14.98	11.33	11.98	12.39	13.04	14.49
	6H	12.20	12.80	13.28	13.87	15.33	11.70	12.30	12.78	13.37	14.83
	8H	12.29	12.87	13.38	13.95	15.40	11.79	12.37	12.87	13.45	14.90
	12H	12.33	12.88	13.42	13.95	15.43	11.82	12.37	12.91	13.45	14.92
4H	2H	10.05	10.71	11.13	11.77	13.22	9.70	10.35	10.77	11.42	12.86
	3H	11.89	12.44	12.97	13.52	14.98	11.48	12.03	12.56	13.12	14.57
	4H	12.58	13.09	13.67	14.17	15.64	12.16	12.66	13.25	13.74	15.22
	6H	13.08	13.51	14.17	14.61	16.08	12.64	13.07	13.74	14.18	15.65
	8H	13.21	13.62	14.31	14.71	16.20	12.78	13.18	13.87	14.27	15.76
	12H	13.27	13.64	14.39	14.75	16.24	12.82	13.19	13.94	14.30	15.79
8H	4H	12.76	13.16	13.86	14.26	15.75	12.38	12.79	13.48	13.88	15.37
	6H	13.36	13.70	14.48	14.83	16.32	12.98	13.31	14.10	14.45	15.94
	8H	13.57	13.86	14.70	14.98	16.49	13.18	13.47	14.30	14.59	16.09
	12H	13.69	13.94	14.81	15.06	16.60	13.28	13.53	14.40	14.65	16.19
12H	4H	12.74	13.10	13.85	14.21	15.71	12.37	12.73	13.48	13.84	15.34
	6H	13.39	13.68	14.51	14.80	16.30	13.02	13.31	14.14	14.43	15.93
	8H	13.61	13.87	14.74	14.98	16.53	13.23	13.49	14.36	14.60	16.14