

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: P925696

Luminaire Tested: DFN2DIP-SQ3F0-110D060US950-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P925696
REPORT IS A COMBINATION OF REPORTS P899911 AND P896733
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ3F0-110D060US950-FLLFLL
Description: 3 foot, Square Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

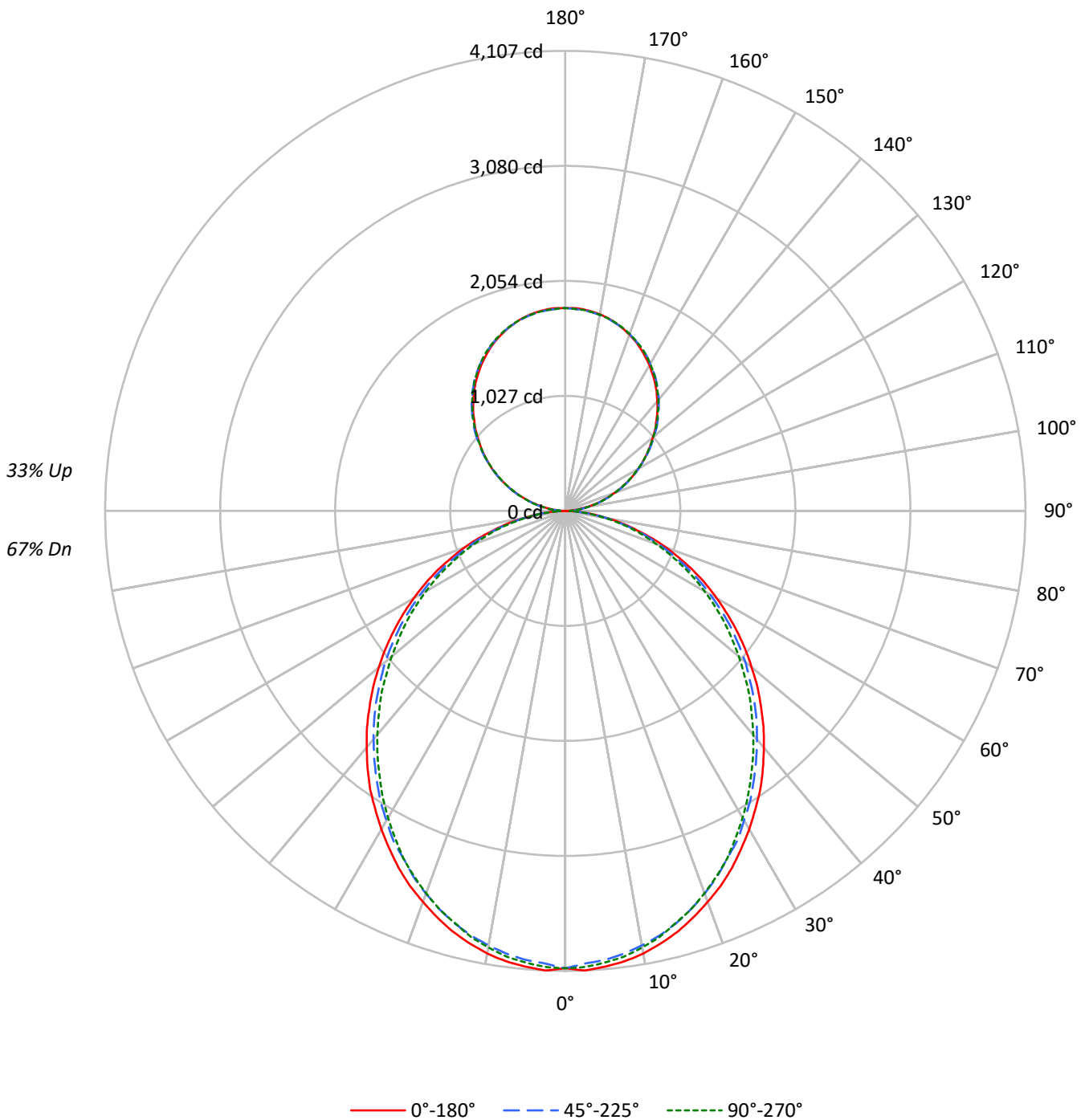
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 15454.8 lumens
Efficiency: N/A
Efficacy: 98.4 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-Direct

Input Watts (W): 157
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9977
Total Harmonic Distortion (THDi): 0.049
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P925696
CATALOG NUMBER: DFN2DIP-SQ3F0-110D060US950-FLLFL

Luminous Intensity Polar Plot





TEST NUMBER: P925696

CATALOG NUMBER: DFN2DIP-SQ3F0-110D060US950-FLLFLL

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	50	30	10	0
RCR																					
0	111	111	111	111	105	105	105	105	93	93	93	82	82	82	72	72	72	67	67	67	67
1	102	97	93	90	96	92	88	85	82	79	76	72	70	68	64	62	61	57	57	57	57
2	93	85	79	73	87	80	75	70	72	67	63	63	60	57	56	54	51	47	47	47	47
3	85	75	67	61	79	71	64	58	63	58	53	56	52	48	50	46	44	40	40	40	40
4	77	66	58	52	73	63	55	50	56	50	46	50	45	42	44	41	38	35	35	35	35
5	71	59	51	45	67	56	49	43	50	44	39	45	40	36	40	36	33	30	30	30	30
6	66	53	45	39	62	51	43	37	45	39	35	41	36	32	36	32	29	26	26	26	26
7	61	48	40	34	57	46	38	33	41	35	31	37	32	28	33	29	26	23	23	23	23
8	56	44	36	30	53	42	34	29	38	32	27	34	29	25	31	26	23	21	21	21	21
9	53	40	32	27	50	38	31	26	35	29	24	31	26	23	28	24	21	19	19	19	19
10	49	37	29	24	46	35	28	24	32	26	22	29	24	21	26	22	19	17	17	17	17

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	4679	4679	4679
5°	4683	4610	4643
10°	4642	4545	4579
15°	4571	4467	4479
20°	4476	4360	4377
25°	4381	4233	4259
30°	4263	4114	4110
35°	4151	3974	3952
40°	4013	3833	3801
45°	3876	3691	3648
50°	3725	3542	3470
55°	3568	3370	3305
60°	3389	3166	3117
65°	3194	2955	2895
70°	2946	2696	2656
75°	2602	2386	2433
80°	2188	1991	2011
85°	1540	1319	1317

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 3876 cd/sqm



TEST NUMBER: P925696

CATALOG NUMBER: DFN2DIP-SQ3F0-110D060US950-FLLFLL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	384.3	2.5
10°-20°	1081.3	7.0
20°-30°	1589.1	10.3
30°-40°	1845.7	11.9
40°-50°	1843.4	11.9
50°-60°	1607.4	10.4
60°-70°	1188.2	7.7
70°-80°	672.3	4.3
80°-90°	182.6	1.2
90°-100°	112.0	0.7
100°-110°	355.9	2.3
110°-120°	609.1	3.9
120°-130°	801.1	5.2
130°-140°	899.2	5.8
140°-150°	881.7	5.7
150°-160°	739.6	4.8
160°-170°	490.5	3.2
170°-180°	171.4	1.1
0°-30°	3054.8	19.8
0°-40°	4900.4	31.7
0°-60°	8351.2	54.0
0°-90°	10394.2	67.3
90°-120°	1077.0	7.0
90°-150°	3659.0	23.7
90°-180°	5061.0	32.7
0°-180°	15454.8	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4083	4083	4083	4083	4083	
5°	4083	4068	4024	4056	4048	388
15°	3887	3864	3812	3828	3809	1095
25°	3518	3487	3420	3428	3420	1619
35°	3035	2996	2933	2909	2890	1895
45°	2470	2442	2383	2340	2324	1906
55°	1869	1845	1798	1751	1732	1671
65°	1260	1237	1198	1162	1143	1246
75°	659	652	632	609	617	704
85°	161	157	153	141	138	179
90°	2	20	54	50	52	15
95°	80	95	98	98	95	89
105°	329	333	336	339	339	347
115°	611	620	617	616	611	605
125°	889	903	898	893	892	794
135°	1150	1167	1170	1168	1164	889
145°	1396	1407	1416	1417	1411	872
155°	1596	1601	1606	1613	1608	735
165°	1737	1735	1735	1746	1738	490
175°	1807	1803	1799	1810	1801	172
180°	1810	1810	1810	1810	1810	



TEST NUMBER: P925696

CATALOG NUMBER: DFN2DIP-SQ3F0-110D060US950-FLLFL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	4083.3	4083.3	4083.3	4083.3	4083.3
2.5°	4107.0	4087.4	4044.1	4083.3	4075.8
5°	4083.3	4067.9	4024.5	4055.7	4048.3
7.5°	4055.7	4032.5	3989.2	4020.8	4012.9
10°	4012.9	3985.3	3938.3	3969.5	3957.9
12.5°	3953.8	3930.4	3883.4	3902.9	3895.0
15°	3887.1	3863.7	3812.5	3828.3	3808.7
17.5°	3804.6	3781.3	3730.0	3749.6	3730.0
20°	3714.2	3690.8	3635.9	3647.5	3632.2
22.5°	3624.2	3588.8	3537.5	3537.5	3529.6
25°	3518.0	3486.8	3420.1	3427.6	3420.1
27.5°	3400.1	3372.6	3321.7	3310.1	3290.5
30°	3282.6	3250.9	3192.2	3180.5	3164.7
32.5°	3156.8	3133.5	3070.5	3046.8	3031.0
35°	3035.2	2996.0	2933.1	2909.3	2889.8
37.5°	2897.7	2862.3	2799.4	2771.8	2752.3
40°	2756.5	2724.8	2661.9	2626.9	2611.1
42.5°	2619.0	2587.3	2524.9	2485.3	2462.0
45°	2469.9	2442.3	2383.2	2340.4	2324.5
47.5°	2324.5	2297.0	2234.1	2190.8	2167.4
50°	2171.2	2151.7	2096.6	2041.7	2022.1
52.5°	2022.1	1994.5	1943.8	1900.4	1872.9
55°	1869.2	1845.4	1798.4	1751.3	1731.7
57.5°	1715.9	1696.3	1645.1	1597.9	1582.1
60°	1562.6	1547.2	1492.2	1448.8	1437.2
62.5°	1413.4	1386.0	1346.8	1307.6	1291.8
65°	1260.5	1236.8	1197.7	1162.3	1142.7
67.5°	1103.5	1083.6	1048.5	1021.1	1005.2
70°	958.1	942.3	906.9	879.4	863.9
72.5°	809.0	793.2	773.6	746.1	734.4
75°	659.4	652.0	631.9	608.7	616.6
77.5°	526.1	510.3	502.4	490.7	479.1
80°	392.9	388.7	380.7	369.1	361.2
82.5°	267.0	267.0	263.3	247.5	247.5
85°	160.8	157.0	153.3	141.2	137.5
87.5°	70.8	62.9	55.0	43.3	39.1
90°	1.6	19.7	53.5	50.2	51.8
92.5°	33.9	45.9	47.5	49.1	49.1
95°	79.7	94.9	97.7	97.7	94.9
97.5°	132.6	146.8	152.8	152.8	152.8
100°	193.8	206.3	210.6	210.6	209.0
102.5°	258.2	267.4	273.4	275.0	273.4
105°	328.6	332.9	336.2	339.0	339.0
107.5°	398.4	405.0	405.0	406.0	398.4
110°	466.1	474.8	474.8	474.8	470.4



TEST NUMBER: P925696

CATALOG NUMBER: DFN2DIP-SQ3F0-110D060US950-FLLFLL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	539.2	548.5	546.8	542.4	539.2
115°	611.2	620.0	617.2	615.6	611.2
117.5°	682.8	694.8	687.1	682.8	678.4
120°	754.8	766.8	754.8	754.8	749.8
122.5°	820.2	835.5	827.9	823.6	820.2
125°	889.0	902.7	898.3	893.4	891.8
127.5°	956.2	973.1	967.1	960.6	956.2
130°	1019.0	1038.6	1035.9	1032.6	1026.6
132.5°	1089.4	1104.6	1105.7	1098.1	1093.7
135°	1150.0	1166.8	1170.1	1168.5	1164.1
137.5°	1217.6	1231.2	1234.0	1232.9	1226.4
140°	1277.1	1290.8	1298.4	1298.4	1292.4
142.5°	1338.2	1351.8	1356.2	1357.8	1351.8
145°	1396.1	1407.0	1415.7	1417.4	1411.3
147.5°	1447.9	1461.5	1468.1	1470.8	1464.8
150°	1501.4	1510.7	1516.7	1521.5	1516.7
152.5°	1548.8	1558.2	1565.8	1571.8	1565.8
155°	1596.3	1600.7	1605.6	1613.3	1608.3
157.5°	1637.3	1640.6	1643.3	1654.2	1646.6
160°	1673.9	1677.1	1678.8	1688.0	1681.5
162.5°	1707.7	1707.7	1709.3	1719.7	1712.0
165°	1736.6	1734.9	1734.9	1745.9	1738.3
167.5°	1762.8	1757.9	1757.9	1768.8	1761.2
170°	1782.5	1778.1	1776.4	1787.3	1778.1
172.5°	1796.1	1791.7	1790.1	1801.0	1791.7
175°	1807.0	1802.7	1799.3	1810.3	1801.0
177.5°	1813.0	1808.7	1805.3	1814.6	1805.3
180°	1810.3	1810.3	1810.3	1810.3	1810.3



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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	14.06	15.10	14.85	15.91	16.91	13.61	14.65	14.40	15.47	16.47
	3H	15.72	16.66	16.53	17.49	18.52	15.23	16.17	16.04	17.00	18.03
	4H	16.32	17.20	17.14	18.03	19.08	15.82	16.71	16.65	17.54	18.58
	6H	16.72	17.54	17.56	18.38	19.43	16.22	17.04	17.06	17.88	18.93
	8H	16.83	17.61	17.68	18.47	19.52	16.33	17.11	17.17	17.97	19.02
	12H	16.88	17.62	17.73	18.48	19.56	16.37	17.11	17.23	17.97	19.05
4H	2H	14.53	15.42	15.36	16.25	17.29	14.18	15.06	15.01	15.90	16.94
	3H	16.41	17.15	17.25	18.02	19.07	16.00	16.74	16.84	17.61	18.66
	4H	17.13	17.80	17.98	18.66	19.75	16.70	17.38	17.56	18.24	19.33
	6H	17.65	18.23	18.52	19.12	20.21	17.22	17.80	18.09	18.69	19.77
	8H	17.80	18.34	18.67	19.23	20.33	17.36	17.91	18.24	18.79	19.89
	12H	17.88	18.37	18.77	19.27	20.38	17.43	17.92	18.32	18.82	19.93
8H	4H	17.34	17.88	18.21	18.76	19.86	16.96	17.50	17.83	18.38	19.49
	6H	17.97	18.42	18.87	19.34	20.44	17.58	18.03	18.48	18.96	20.06
	8H	18.19	18.59	19.10	19.50	20.62	17.79	18.19	18.70	19.11	20.23
	12H	18.32	18.68	19.24	19.59	20.76	17.91	18.26	18.83	19.18	20.35
12H	4H	17.33	17.82	18.22	18.72	19.83	16.96	17.45	17.85	18.35	19.46
	6H	18.00	18.40	18.91	19.32	20.43	17.62	18.02	18.53	18.94	20.06
	8H	18.24	18.60	19.16	19.51	20.68	17.86	18.22	18.78	19.13	20.30