

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: P904190

Luminaire Tested: DFN2DIP-SQ4F0-140D060US830-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P904190
REPORT IS A COMBINATION OF REPORTS P900074 AND P896915
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-140D060US830-RLLFLL
Description: 4 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

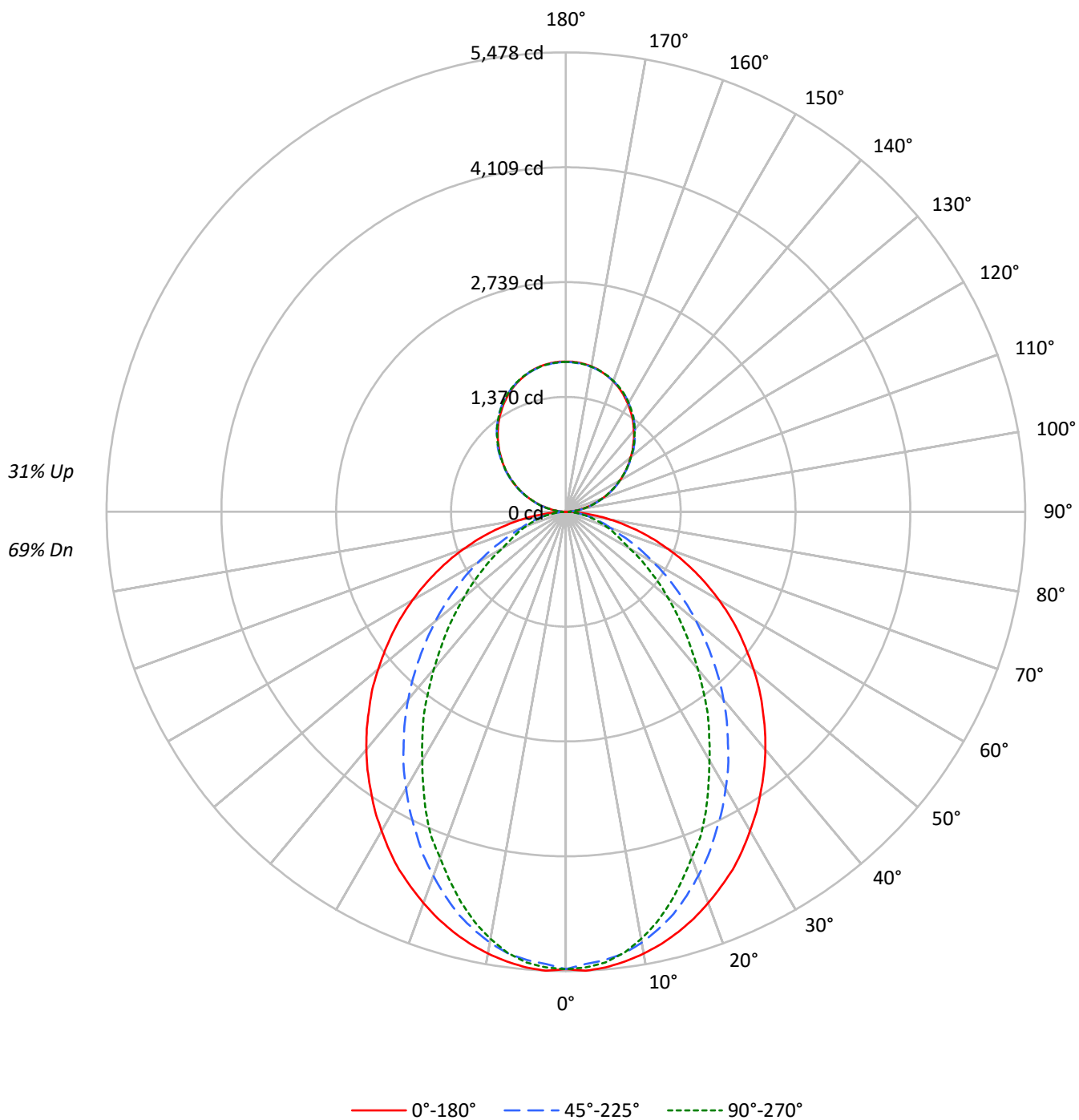
Lumens per Lamp: N/A
Luminaire Lumens: 16221.1 lumens
Efficiency: N/A
Efficacy: 85.8 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 189
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9789
Total Harmonic Distortion (THDi): 0.074
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	112	112	112	112	106	106	106	106	94	94	94	83	83	83	74	74	74
1	103	99	95	91	97	93	90	87	84	81	79	75	73	71	66	65	64
2	94	87	81	76	89	82	77	73	74	70	66	66	63	60	59	57	55
3	86	77	70	64	81	73	67	62	66	61	57	59	55	52	53	50	47
4	79	69	61	55	75	65	58	53	59	53	49	53	49	45	48	44	41
5	73	62	54	48	69	59	51	46	53	47	43	48	43	40	43	40	36
6	68	56	48	42	64	53	46	40	48	42	38	44	39	35	40	36	32
7	63	51	43	37	59	48	41	36	44	38	34	40	35	31	36	32	29
8	59	46	39	33	55	44	37	32	41	35	30	37	32	28	34	29	26
9	55	43	35	30	52	41	34	29	37	31	27	34	29	26	31	27	24
10	51	39	32	27	49	38	31	26	35	29	25	32	27	23	29	25	22

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3827	3827	3827
5°	3833	3767	3791
10°	3795	3694	3669
15°	3743	3572	3479
20°	3673	3405	3246
25°	3603	3217	3021
30°	3507	3024	2735
35°	3414	2817	2484
40°	3319	2602	2195
45°	3209	2364	1934
50°	3095	2123	1679
55°	2977	1866	1433
60°	2839	1597	1181
65°	2681	1323	1064
70°	2489	1068	965
75°	2247	943	880
80°	1898	794	767
85°	1322	534	584

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 3209 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	511.1	3.2
10°-20°	1403.2	8.7
20°-30°	1970.0	12.1
30°-40°	2147.4	13.2
40°-50°	1973.7	12.2
50°-60°	1550.0	9.6
60°-70°	1008.9	6.2
70°-80°	519.3	3.2
80°-90°	137.7	0.8
90°-100°	110.7	0.7
100°-110°	351.6	2.2
110°-120°	601.8	3.7
120°-130°	791.4	4.9
130°-140°	888.4	5.5
140°-150°	871.1	5.4
150°-160°	730.8	4.5
160°-170°	484.6	3.0
170°-180°	169.4	1.0
0°-30°	3884.3	23.9
0°-40°	6031.7	37.2
0°-60°	9555.4	58.9
0°-90°	11221.3	69.2
90°-120°	1064.1	6.6
90°-150°	3615.0	22.3
90°-180°	5000.0	30.8
0°-180°	16221.1	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	5454	5454	5454	5454	5454	
5°	5454	5429	5365	5409	5394	517
15°	5187	5133	4965	4871	4822	1462
25°	4709	4550	4225	4023	3948	2165
35°	4057	3805	3371	3060	2951	2539
45°	3317	2986	2468	2117	1999	2561
55°	2522	2137	1604	1308	1214	2253
65°	1703	1303	859	691	676	1688
75°	908	562	395	360	356	960
85°	212	108	94	94	94	243
90°	2	19	53	50	51	16
95°	79	94	96	96	94	88
105°	325	329	332	335	335	343
115°	604	613	610	608	604	597
125°	878	892	888	883	881	785
135°	1136	1153	1156	1154	1150	878
145°	1379	1390	1399	1400	1394	862
155°	1577	1582	1586	1594	1589	726
165°	1716	1714	1714	1725	1717	484
175°	1785	1781	1778	1789	1779	170
180°	1789	1789	1789	1789	1789	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	5453.7	5453.7	5453.7	5453.7	5453.7
2.5°	5478.3	5453.7	5399.3	5449.0	5439.0
5°	5453.7	5429.1	5364.7	5409.3	5394.5
7.5°	5409.3	5379.8	5310.8	5330.2	5305.6
10°	5350.1	5315.5	5217.1	5201.8	5172.5
12.5°	5276.2	5231.7	5098.1	5068.8	5014.4
15°	5187.2	5132.7	4965.1	4871.4	4822.2
17.5°	5083.5	5004.4	4797.1	4688.7	4609.6
20°	4965.1	4866.2	4619.6	4496.5	4387.6
22.5°	4836.8	4723.3	4436.8	4269.2	4195.4
25°	4708.6	4550.4	4224.8	4022.6	3948.2
27.5°	4555.7	4387.6	4027.3	3795.3	3681.8
30°	4392.8	4204.9	3810.0	3558.7	3425.1
32.5°	4234.7	4007.4	3603.2	3306.8	3183.2
35°	4057.2	3805.3	3371.2	3060.2	2951.2
37.5°	3884.4	3612.6	3153.8	2813.0	2689.9
40°	3701.6	3405.8	2926.6	2576.3	2448.1
42.5°	3514.2	3198.4	2699.9	2334.4	2211.3
45°	3316.7	2985.8	2468.0	2117.0	1998.8
47.5°	3129.2	2779.0	2245.9	1895.1	1786.7
50°	2921.9	2571.6	2028.5	1687.7	1584.5
52.5°	2719.2	2349.0	1821.2	1495.5	1401.7
55°	2521.9	2136.9	1603.9	1308.1	1214.3
57.5°	2319.7	1924.9	1411.7	1135.3	1056.2
60°	2112.3	1717.5	1209.1	957.7	878.6
62.5°	1910.3	1515.4	1036.3	799.6	760.3
65°	1702.9	1302.8	858.8	691.2	676.0
67.5°	1505.4	1105.4	691.2	606.9	592.2
70°	1298.1	913.2	572.3	523.1	503.2
72.5°	1100.7	735.2	478.6	439.3	429.4
75°	908.0	562.4	394.8	360.2	355.5
77.5°	715.9	399.5	311.0	291.2	281.2
80°	537.8	286.4	236.7	217.4	217.4
82.5°	374.9	192.7	162.9	152.9	152.9
85°	212.1	108.4	93.7	93.7	93.7
87.5°	79.1	39.3	39.3	34.6	34.6
90°	1.6	19.4	52.9	49.6	51.2
92.5°	33.5	45.3	46.9	48.5	48.5
95°	78.7	93.8	96.5	96.5	93.8
97.5°	131.0	145.1	151.0	151.0	151.0
100°	191.4	203.8	208.1	208.1	206.5
102.5°	255.1	264.2	270.1	271.7	270.1
105°	324.6	328.9	332.2	334.9	334.9
107.5°	393.6	400.1	400.1	401.1	393.6
110°	460.5	469.1	469.1	469.1	464.8

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	532.7	541.9	540.3	535.9	532.7
115°	603.9	612.6	609.8	608.2	603.9
117.5°	674.6	686.5	678.8	674.6	670.2
120°	745.7	757.6	745.7	745.7	740.8
122.5°	810.4	825.5	817.9	813.7	810.4
125°	878.4	891.8	887.5	882.7	881.1
127.5°	944.7	961.4	955.5	949.0	944.7
130°	1006.7	1026.1	1023.4	1020.2	1014.3
132.5°	1076.3	1091.4	1092.4	1084.9	1080.5
135°	1136.1	1152.8	1156.0	1154.4	1150.1
137.5°	1203.0	1216.4	1219.2	1218.0	1211.6
140°	1261.8	1275.3	1282.8	1282.8	1276.9
142.5°	1322.1	1335.6	1339.9	1341.5	1335.6
145°	1379.3	1390.1	1398.7	1400.3	1394.4
147.5°	1430.5	1444.0	1450.5	1453.1	1447.2
150°	1483.4	1492.5	1498.5	1503.3	1498.5
152.5°	1530.2	1539.5	1547.0	1552.9	1547.0
155°	1577.2	1581.5	1586.3	1593.9	1589.0
157.5°	1617.6	1620.9	1623.5	1634.4	1626.8
160°	1653.8	1657.0	1658.6	1667.7	1661.3
162.5°	1687.2	1687.2	1688.8	1699.0	1691.5
165°	1715.7	1714.1	1714.1	1724.9	1717.4
167.5°	1741.6	1736.8	1736.8	1747.6	1740.0
170°	1761.0	1756.7	1755.1	1765.9	1756.7
172.5°	1774.5	1770.2	1768.6	1779.3	1770.2
175°	1785.3	1781.0	1777.7	1788.6	1779.3
177.5°	1791.2	1787.0	1783.7	1792.8	1783.7
180°	1788.6	1788.6	1788.6	1788.6	1788.6

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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	13.45	14.47	14.23	15.26	16.23	9.41	10.43	10.19	11.22	12.20
	3H	15.15	16.05	15.94	16.86	17.86	10.61	11.52	11.41	12.33	13.33
	4H	15.77	16.62	16.58	17.44	18.45	11.07	11.93	11.88	12.75	13.76
	6H	16.20	16.99	17.02	17.81	18.84	11.40	12.19	12.23	13.02	14.04
	8H	16.33	17.08	17.17	17.93	18.95	11.50	12.25	12.33	13.09	14.12
	12H	16.40	17.12	17.24	17.95	19.01	11.55	12.27	12.39	13.10	14.15
4H	2H	13.49	14.35	14.31	15.16	16.18	10.03	10.89	10.85	11.70	12.72
	3H	15.34	16.05	16.17	16.90	17.93	11.40	12.11	12.23	12.96	13.99
	4H	16.04	16.69	16.88	17.54	18.59	11.95	12.60	12.79	13.45	14.50
	6H	16.57	17.13	17.43	18.00	19.06	12.38	12.94	13.24	13.81	14.88
	8H	16.75	17.28	17.61	18.14	19.21	12.52	13.04	13.38	13.91	14.98
	12H	16.86	17.33	17.74	18.22	19.29	12.59	13.06	13.47	13.95	15.02
8H	4H	16.03	16.55	16.89	17.41	18.49	12.25	12.77	13.11	13.64	14.71
	6H	16.60	17.03	17.49	17.94	19.02	12.78	13.21	13.66	14.12	15.19
	8H	16.82	17.20	17.72	18.11	19.20	12.97	13.35	13.87	14.26	15.35
	12H	16.97	17.31	17.87	18.20	19.35	13.10	13.43	14.00	14.33	15.47
12H	4H	15.99	16.45	16.86	17.34	18.42	12.26	12.73	13.14	13.62	14.70
	6H	16.58	16.96	17.48	17.86	18.95	12.83	13.21	13.73	14.11	15.20
	8H	16.81	17.15	17.71	18.04	19.19	13.05	13.38	13.95	14.28	15.42