

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: P903540

Luminaire Tested: DFN2DIP-SQ2F0-060D030US830-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P903540
REPORT IS A COMBINATION OF REPORTS P899777 AND P896659
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ2F0-060D030US830-FLLFLL
Description: 2 foot, Square Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

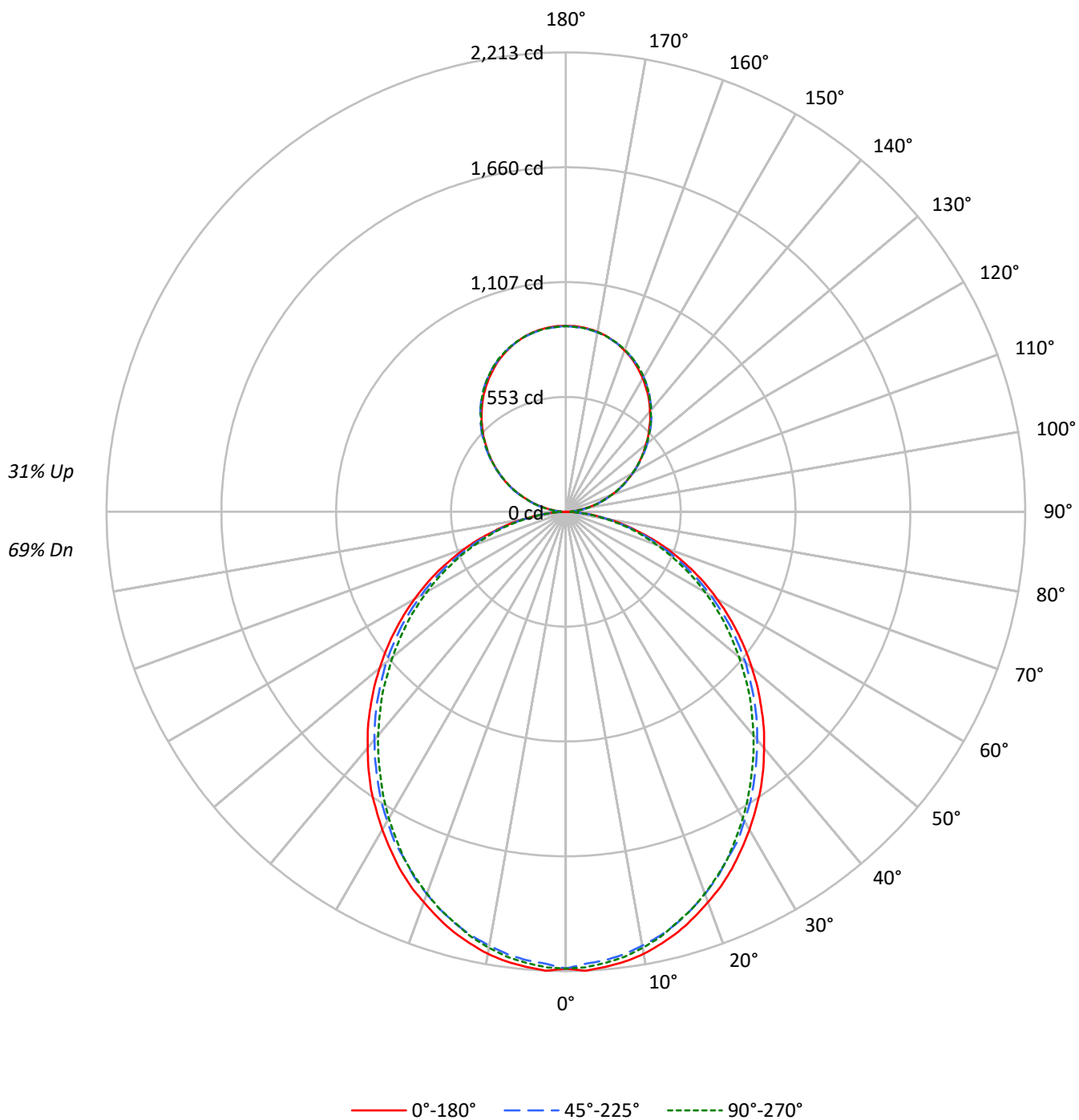
Lumens per Lamp: N/A
Luminaire Lumens: 8101.2 lumens
Efficiency: N/A
Efficacy: 104.1 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 2.21' x L: 2.21' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 77.8
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9781
Total Harmonic Distortion (THDi): 0.075
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	102	98	94	90	96	92	89	86	83	80	77	74	71	70	65	64	62
2	93	85	79	74	88	81	75	70	72	68	64	65	61	58	57	55	52
3	85	75	67	61	80	71	64	59	64	58	54	57	53	49	51	48	45
4	78	67	58	52	73	63	56	50	57	51	46	51	46	42	46	42	39
5	71	59	51	45	67	56	49	43	51	45	40	46	41	37	41	37	34
6	66	53	45	39	62	51	43	38	46	40	35	41	36	32	37	33	30
7	61	48	40	34	58	46	39	33	42	35	31	38	33	29	34	30	26
8	57	44	36	31	54	42	35	30	38	32	28	35	29	26	31	27	24
9	53	40	33	27	50	39	31	26	35	29	25	32	27	23	29	25	21
10	50	37	30	25	47	36	29	24	32	27	22	30	25	21	27	23	20

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	4839	4839	4839
5°	4838	4761	4796
10°	4791	4686	4725
15°	4711	4598	4617
20°	4608	4481	4506
25°	4505	4342	4379
30°	4378	4212	4220
35°	4256	4061	4052
40°	4108	3908	3891
45°	3960	3754	3727
50°	3798	3592	3537
55°	3627	3404	3361
60°	3435	3184	3159
65°	3222	2954	2921
70°	2953	2673	2663
75°	2583	2336	2415
80°	2134	1907	1961
85°	1441	1204	1233

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 3960 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	207.1	2.6
10°-20°	582.7	7.2
20°-30°	856.4	10.6
30°-40°	994.6	12.3
40°-50°	993.4	12.3
50°-60°	866.2	10.7
60°-70°	640.3	7.9
70°-80°	362.3	4.5
80°-90°	98.2	1.2
90°-100°	55.3	0.7
100°-110°	175.8	2.2
110°-120°	300.9	3.7
120°-130°	395.7	4.9
130°-140°	444.2	5.5
140°-150°	435.6	5.4
150°-160°	365.4	4.5
160°-170°	242.3	3.0
170°-180°	84.7	1.0
0°-30°	1646.2	20.3
0°-40°	2640.9	32.6
0°-60°	4500.5	55.6
0°-90°	5601.2	69.1
90°-120°	532.1	6.6
90°-150°	1807.5	22.3
90°-180°	2500.0	30.9
0°-180°	8101.2	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2200	2200	2200	2200	2200	
5°	2200	2192	2169	2186	2182	209
15°	2095	2082	2055	2063	2053	590
25°	1896	1879	1843	1847	1843	872
35°	1636	1615	1581	1568	1557	1021
45°	1331	1316	1284	1261	1253	1027
55°	1007	994	969	944	933	901
65°	679	667	646	626	616	672
75°	355	351	340	328	332	379
85°	87	85	83	76	74	97
90°	1	10	26	25	26	8
95°	39	47	48	48	47	44
105°	162	164	166	167	167	171
115°	302	306	305	304	302	299
125°	439	446	444	441	440	392
135°	568	576	578	577	575	439
145°	690	695	699	700	697	431
155°	789	791	793	797	795	363
165°	858	857	857	862	859	242
175°	893	890	889	894	890	85
180°	894	894	894	894	894	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2200.5	2200.5	2200.5	2200.5	2200.5
2.5°	2213.3	2202.7	2179.3	2200.5	2196.4
5°	2200.5	2192.2	2168.8	2185.7	2181.6
7.5°	2185.7	2173.1	2149.8	2166.8	2162.6
10°	2162.6	2147.8	2122.3	2139.2	2132.9
12.5°	2130.7	2118.1	2092.7	2103.3	2099.0
15°	2094.7	2082.2	2054.6	2063.1	2052.6
17.5°	2050.3	2037.8	2010.2	2020.6	2010.2
20°	2001.6	1989.0	1959.4	1965.7	1957.4
22.5°	1953.1	1934.0	1906.4	1906.4	1902.1
25°	1895.8	1879.1	1843.0	1847.1	1843.0
27.5°	1832.3	1817.5	1790.1	1783.9	1773.3
30°	1769.1	1751.9	1720.3	1714.0	1705.4
32.5°	1701.2	1688.7	1654.7	1641.9	1633.4
35°	1635.7	1614.6	1580.6	1567.8	1557.3
37.5°	1561.6	1542.5	1508.6	1493.7	1483.2
40°	1485.4	1468.4	1434.5	1415.7	1407.1
42.5°	1411.4	1394.3	1360.7	1339.4	1326.7
45°	1331.1	1316.2	1284.3	1261.2	1252.6
47.5°	1252.6	1237.8	1204.0	1180.6	1168.0
50°	1170.1	1159.5	1129.9	1100.2	1089.7
52.5°	1089.7	1074.9	1047.4	1024.2	1009.4
55°	1007.3	994.5	969.1	943.8	933.2
57.5°	924.7	914.2	886.6	861.2	852.6
60°	842.1	833.8	804.2	780.8	774.5
62.5°	761.7	746.9	725.8	704.6	696.2
65°	679.3	666.6	645.5	626.3	615.8
67.5°	594.6	583.9	565.1	550.3	541.7
70°	516.3	507.8	488.7	473.9	465.6
72.5°	435.9	427.4	416.9	402.1	395.8
75°	355.3	351.4	340.5	328.0	332.2
77.5°	283.5	275.0	270.7	264.5	258.2
80°	211.7	209.4	205.2	198.9	194.6
82.5°	143.9	143.9	141.9	133.4	133.4
85°	86.6	84.6	82.6	76.1	74.1
87.5°	38.2	33.9	29.6	23.4	21.1
90°	0.8	9.7	26.4	24.8	25.6
92.5°	16.7	22.6	23.5	24.2	24.2
95°	39.4	46.9	48.3	48.3	46.9
97.5°	65.5	72.5	75.5	75.5	75.5
100°	95.7	101.9	104.1	104.1	103.3
102.5°	127.5	132.1	135.1	135.9	135.1
105°	162.3	164.5	166.1	167.4	167.4
107.5°	196.8	200.0	200.0	200.6	196.8
110°	230.3	234.6	234.6	234.6	232.4

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	266.4	271.0	270.1	268.0	266.4
115°	302.0	306.2	304.9	304.2	302.0
117.5°	337.2	343.2	339.4	337.2	335.1
120°	372.9	378.8	372.9	372.9	370.4
122.5°	405.2	412.7	409.0	406.8	405.2
125°	439.2	445.9	443.7	441.3	440.5
127.5°	472.3	480.7	477.8	474.5	472.3
130°	503.3	513.0	511.7	510.1	507.1
132.5°	538.1	545.6	546.2	542.4	540.3
135°	568.1	576.4	578.1	577.2	575.0
137.5°	601.4	608.2	609.5	609.1	605.8
140°	630.8	637.6	641.4	641.4	638.4
142.5°	661.1	667.8	670.0	670.8	667.8
145°	689.7	695.0	699.4	700.1	697.2
147.5°	715.3	722.0	725.2	726.6	723.6
150°	741.7	746.3	749.2	751.7	749.2
152.5°	765.2	769.7	773.5	776.5	773.5
155°	788.6	790.7	793.1	796.9	794.6
157.5°	808.8	810.4	811.8	817.2	813.4
160°	826.9	828.5	829.3	833.9	830.7
162.5°	843.6	843.6	844.4	849.5	845.7
165°	857.9	857.1	857.1	862.4	858.7
167.5°	870.8	868.4	868.4	873.7	870.0
170°	880.5	878.4	877.6	883.0	878.4
172.5°	887.2	885.1	884.3	889.7	885.1
175°	892.7	890.5	888.9	894.3	889.7
177.5°	895.6	893.4	891.8	896.5	891.8
180°	894.3	894.3	894.3	894.3	894.3

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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	14.24	15.30	15.01	16.10	17.07	13.79	14.86	14.57	15.65	16.62
	3H	15.89	16.85	16.68	17.66	18.65	15.40	16.36	16.19	17.17	18.16
	4H	16.48	17.38	17.28	18.19	19.20	15.98	16.89	16.79	17.70	18.71
	6H	16.87	17.71	17.69	18.53	19.55	16.37	17.21	17.19	18.03	19.05
	8H	16.98	17.77	17.80	18.61	19.63	16.47	17.27	17.30	18.11	19.13
	12H	17.02	17.78	17.86	18.61	19.67	16.52	17.27	17.35	18.11	19.16
4H	2H	14.71	15.62	15.52	16.43	17.44	14.36	15.26	15.16	16.07	17.08
	3H	16.57	17.33	17.39	18.17	19.20	16.16	16.92	16.99	17.77	18.79
	4H	17.28	17.97	18.11	18.81	19.87	16.86	17.54	17.69	18.39	19.44
	6H	17.79	18.38	18.64	19.25	20.31	17.36	17.95	18.21	18.82	19.88
	8H	17.93	18.49	18.79	19.35	20.42	17.50	18.05	18.35	18.92	19.99
	12H	18.01	18.51	18.88	19.39	20.47	17.56	18.06	18.43	18.94	20.02
8H	4H	17.48	18.04	18.33	18.90	19.97	17.10	17.66	17.96	18.52	19.59
	6H	18.10	18.56	18.98	19.46	20.54	17.71	18.17	18.59	19.08	20.15
	8H	18.31	18.71	19.20	19.62	20.70	17.91	18.32	18.81	19.22	20.31
	12H	18.43	18.79	19.33	19.69	20.83	18.02	18.38	18.92	19.28	20.42
12H	4H	17.47	17.97	18.35	18.86	19.94	17.10	17.60	17.98	18.49	19.57
	6H	18.12	18.53	19.02	19.43	20.52	17.75	18.16	18.64	19.06	20.15
	8H	18.36	18.72	19.25	19.61	20.75	17.98	18.34	18.87	19.23	20.37