

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: P903334

Luminaire Tested: DFN2DIP-PN4F0-090D060US830-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P903334
REPORT IS A COMBINATION OF REPORTS P899656 AND P896497
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-PN4F0-090D060US830-RLLFLL
Description: 4 foot, Pentagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

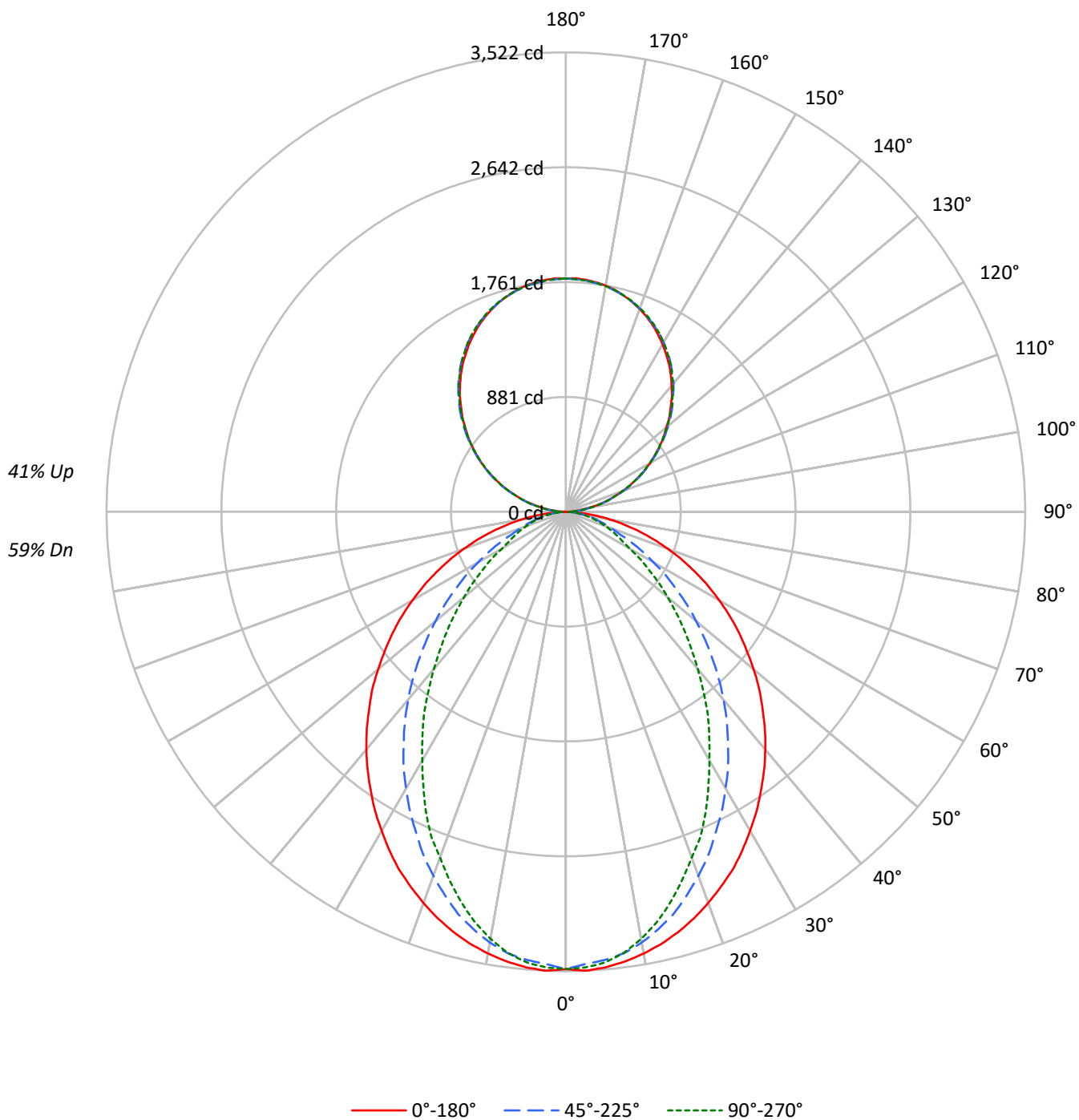
Lumens per Lamp: N/A
Luminaire Lumens: 12215.4 lumens
Efficiency: N/A
Efficacy: 91.5 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.74' x L: 3.94' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 133.5
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9963
Total Harmonic Distortion (THDi): 0.065
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	109	109	109	109	102	102	102	102	88	88	88	76	76	76	64	64	64
1	100	96	92	89	94	90	87	84	78	76	74	68	66	64	58	57	56
2	92	85	79	74	86	79	74	70	69	65	62	60	57	55	52	50	48
3	84	75	68	62	78	70	64	59	62	57	53	54	50	47	46	44	41
4	77	67	59	53	72	63	56	51	55	50	46	48	44	41	42	39	36
5	71	60	52	46	66	56	49	44	50	44	40	44	39	36	38	34	32
6	66	54	46	40	61	51	44	39	45	39	35	40	35	32	35	31	28
7	61	49	41	36	57	46	39	34	41	35	31	36	32	28	32	28	25
8	57	45	37	32	53	42	35	30	38	32	28	33	29	25	29	26	23
9	53	41	34	29	50	39	32	27	35	29	25	31	26	23	27	24	21
10	50	38	31	26	47	36	29	25	32	27	23	29	24	21	25	22	19

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2559	2559	2559
5°	2563	2519	2535
10°	2538	2470	2453
15°	2503	2389	2326
20°	2457	2276	2170
25°	2409	2150	2019
30°	2346	2021	1828
35°	2284	1883	1660
40°	2220	1739	1467
45°	2147	1580	1292
50°	2070	1419	1121
55°	1991	1247	957
60°	1899	1067	788
65°	1793	884	710
70°	1665	713	643
75°	1504	629	586
80°	1270	529	510
85°	885	355	386

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2147 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	328.6	2.7
10°-20°	902.0	7.4
20°-30°	1266.4	10.4
30°-40°	1380.5	11.3
40°-50°	1268.8	10.4
50°-60°	996.5	8.2
60°-70°	648.6	5.3
70°-80°	333.9	2.7
80°-90°	90.3	0.7
90°-100°	110.7	0.9
100°-110°	351.6	2.9
110°-120°	601.8	4.9
120°-130°	791.4	6.5
130°-140°	888.4	7.3
140°-150°	871.1	7.1
150°-160°	730.8	6.0
160°-170°	484.6	4.0
170°-180°	169.4	1.4
0°-30°	2497.0	20.4
0°-40°	3877.5	31.7
0°-60°	6142.8	50.3
0°-90°	7215.5	59.1
90°-120°	1064.1	8.7
90°-150°	3615.0	29.6
90°-180°	5000.0	40.9
0°-180°	12215.4	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3506	3506	3506	3506	3506	
5°	3506	3490	3449	3477	3468	332
15°	3335	3300	3192	3132	3100	940
25°	3027	2925	2716	2586	2538	1392
35°	2608	2446	2167	1967	1897	1632
45°	2132	1920	1586	1361	1285	1647
55°	1621	1374	1031	841	781	1449
65°	1095	838	552	444	435	1085
75°	584	362	254	232	229	617
85°	136	70	60	60	60	156
90°	2	19	53	50	51	12
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°	3506.0	3506.0	3506.0	3506.0	3506.0
2.5°	3521.8	3506.0	3470.9	3503.0	3496.5
5°	3506.0	3490.1	3448.8	3477.3	3467.9
7.5°	3477.3	3458.5	3414.1	3426.5	3410.7
10°	3439.3	3417.1	3353.8	3344.0	3325.2
12.5°	3391.8	3363.3	3277.4	3258.6	3223.5
15°	3334.6	3299.7	3191.9	3131.6	3100.0
17.5°	3268.0	3217.2	3083.8	3014.2	2963.4
20°	3191.9	3128.3	2969.7	2890.6	2820.6
22.5°	3109.4	3036.4	2852.2	2744.5	2697.1
25°	3027.0	2925.3	2715.9	2586.0	2538.2
27.5°	2928.7	2820.6	2589.0	2439.9	2366.8
30°	2824.0	2703.1	2449.3	2287.7	2201.9
32.5°	2722.3	2576.2	2316.3	2125.8	2046.4
35°	2608.2	2446.3	2167.2	1967.3	1897.2
37.5°	2497.1	2322.4	2027.5	1808.4	1729.3
40°	2379.6	2189.4	1881.4	1656.2	1573.8
42.5°	2259.1	2056.2	1735.6	1500.7	1421.5
45°	2132.2	1919.5	1586.5	1360.9	1284.9
47.5°	2011.7	1786.5	1443.8	1218.2	1148.6
50°	1878.4	1653.1	1304.1	1085.0	1018.6
52.5°	1748.1	1510.1	1170.8	961.4	901.2
55°	1621.2	1373.8	1031.0	840.9	780.6
57.5°	1491.3	1237.5	907.6	729.8	679.0
60°	1357.9	1104.1	777.3	615.7	564.9
62.5°	1228.0	974.2	666.2	514.1	488.8
65°	1094.7	837.5	552.0	444.3	434.6
67.5°	967.8	710.6	444.3	390.1	380.7
70°	834.5	587.1	368.0	336.3	323.5
72.5°	707.6	472.6	307.6	282.4	276.1
75°	583.7	361.6	253.8	231.6	228.6
77.5°	460.1	256.8	199.9	187.2	180.8
80°	345.7	184.2	152.1	139.7	139.7
82.5°	241.0	123.9	104.7	98.3	98.3
85°	136.3	69.7	60.2	60.2	60.2
87.5°	50.8	25.3	25.3	22.2	22.2
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	11.22	12.14	12.11	13.03	14.17	7.19	8.10	8.07	9.00	10.14
	3H	12.91	13.73	13.81	14.63	15.80	8.39	9.20	9.28	10.11	11.27
	4H	13.53	14.29	14.44	15.21	16.38	8.84	9.61	9.75	10.52	11.70
	6H	13.95	14.66	14.88	15.58	16.77	9.17	9.87	10.09	10.79	11.98
	8H	14.08	14.76	15.01	15.69	16.88	9.26	9.93	10.19	10.87	12.05
	12H	14.15	14.79	15.08	15.72	16.93	9.31	9.95	10.24	10.88	12.09
4H	2H	11.25	12.02	12.17	12.93	14.11	7.80	8.56	8.71	9.48	10.65
	3H	13.09	13.73	14.02	14.68	15.86	9.15	9.79	10.08	10.74	11.93
	4H	13.79	14.37	14.73	15.31	16.53	9.71	10.29	10.64	11.23	12.44
	6H	14.31	14.81	15.26	15.78	16.99	10.13	10.63	11.08	11.60	12.81
	8H	14.49	14.96	15.44	15.92	17.14	10.26	10.73	11.21	11.69	12.91
	12H	14.59	15.01	15.56	15.99	17.22	10.33	10.75	11.30	11.73	12.96
8H	4H	13.76	14.23	14.72	15.19	16.42	9.99	10.46	10.95	11.42	12.65
	6H	14.34	14.72	15.31	15.72	16.95	10.52	10.90	11.49	11.90	13.13
	8H	14.55	14.90	15.54	15.88	17.13	10.71	11.05	11.70	12.04	13.28
	12H	14.70	15.00	15.69	15.98	17.27	10.83	11.13	11.82	12.11	13.41
12H	4H	13.72	14.14	14.69	15.11	16.35	10.00	10.42	10.97	11.40	12.63
	6H	14.31	14.65	15.30	15.64	16.89	10.57	10.91	11.55	11.90	13.14
	8H	14.54	14.84	15.53	15.82	17.11	10.78	11.08	11.77	12.06	13.36