

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: P902408

Luminaire Tested: DFN2DIP-4P4F0-080D060US830-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P902408
REPORT IS A COMBINATION OF REPORTS P899126 AND P895967
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P4F0-080D060US830-RLLFLL
Description: 4 foot, 90deg - 4way Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

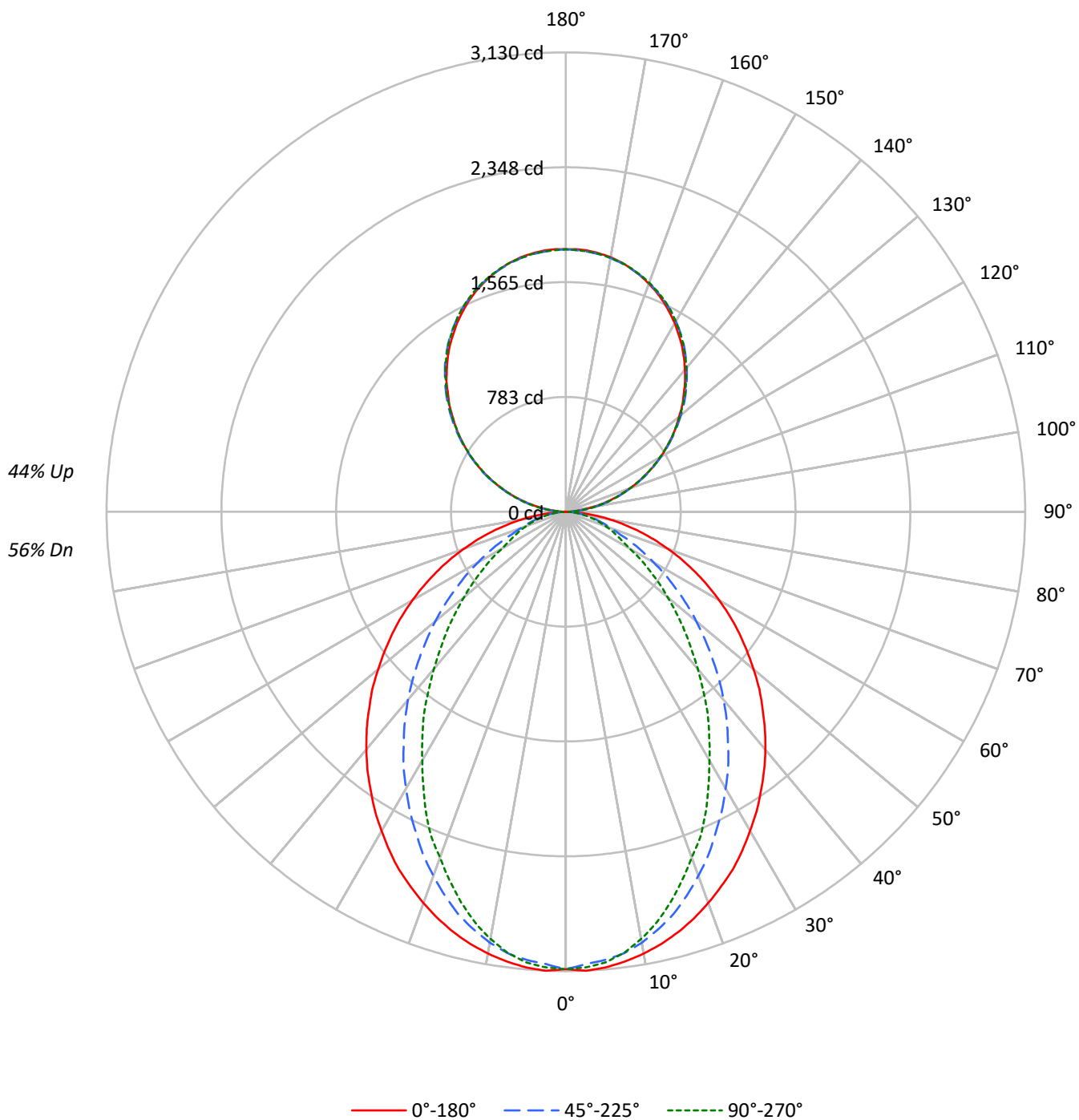
Lumens per Lamp: N/A
Luminaire Lumens: 11414.2 lumens
Efficiency: N/A
Efficacy: 83.9 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 4.07' x L: 4.07' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 136.1
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9971
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: P902408

CATALOG NUMBER: DFN2DIP-4P4F0-080D060US830-RLLFLL

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	101	101	101	101	87	87	87	74	74	74	62	62	62
1	100	96	92	88	93	89	86	83	77	75	72	66	64	63	55	54	53
2	91	84	78	73	85	79	73	69	68	64	61	58	56	53	49	47	46
3	84	74	67	62	78	70	63	58	61	56	52	52	49	46	44	42	40
4	77	66	59	53	71	62	55	50	54	49	45	47	43	40	40	37	35
5	71	59	51	46	66	56	49	43	49	43	39	42	38	35	36	33	30
6	65	53	46	40	61	50	43	38	44	38	34	38	34	31	33	30	27
7	61	48	41	35	56	46	39	34	40	35	30	35	31	27	30	27	24
8	56	44	37	31	52	42	35	30	37	31	27	32	28	25	28	25	22
9	53	41	33	28	49	38	32	27	34	28	25	30	25	22	26	23	20
10	49	37	30	25	46	35	29	24	31	26	22	28	23	20	24	21	18

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2022	2022	2022
5°	2025	1990	2003
10°	2005	1952	1939
15°	1978	1888	1839
20°	1941	1800	1716
25°	1904	1700	1597
30°	1854	1599	1446
35°	1805	1489	1313
40°	1755	1376	1161
45°	1697	1250	1023
50°	1637	1123	888
55°	1575	988	758
60°	1502	846	625
65°	1419	701	563
70°	1318	566	511
75°	1191	501	467
80°	1008	422	407
85°	704	285	311

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
Vertical Angle: 45°
Luminance: 1697 cd/sqm

TEST NUMBER: P902408

CATALOG NUMBER: DFN2DIP-4P4F0-080D060US830-RLLFLL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	292.1	2.6
10°-20°	801.8	7.0
20°-30°	1125.7	9.9
30°-40°	1227.1	10.8
40°-50°	1127.8	9.9
50°-60°	885.7	7.8
60°-70°	576.5	5.1
70°-80°	296.8	2.6
80°-90°	80.8	0.7
90°-100°	110.7	1.0
100°-110°	351.6	3.1
110°-120°	601.8	5.3
120°-130°	791.4	6.9
130°-140°	888.4	7.8
140°-150°	871.1	7.6
150°-160°	730.8	6.4
160°-170°	484.6	4.2
170°-180°	169.4	1.5
0°-30°	2219.6	19.4
0°-40°	3446.7	30.2
0°-60°	5460.2	47.8
0°-90°	6414.4	56.2
90°-120°	1064.1	9.3
90°-150°	3615.0	31.7
90°-180°	5000.0	43.8
0°-180°	11414.2	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3116	3116	3116	3116	3116	
5°	3116	3102	3066	3091	3083	296
15°	2964	2933	2837	2784	2756	835
25°	2691	2600	2414	2299	2256	1237
35°	2318	2174	1926	1749	1686	1451
45°	1895	1706	1410	1210	1142	1464
55°	1441	1221	916	747	694	1288
65°	973	744	491	395	386	965
75°	519	321	226	206	203	549
85°	121	62	54	54	54	139
90°	2	19	53	50	51	11
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	

TEST NUMBER: P902408

CATALOG NUMBER: DFN2DIP-4P4F0-080D060US830-RLLFLL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3116.4	3116.4	3116.4	3116.4	3116.4
2.5°	3130.5	3116.4	3085.3	3113.7	3108.0
5°	3116.4	3102.4	3065.5	3091.0	3082.6
7.5°	3091.0	3074.2	3034.7	3045.8	3031.7
10°	3057.1	3037.4	2981.2	2972.5	2955.7
12.5°	3015.0	2989.6	2913.2	2896.4	2865.3
15°	2964.1	2933.0	2837.2	2783.7	2755.5
17.5°	2904.8	2859.7	2741.2	2679.3	2634.0
20°	2837.2	2780.7	2639.8	2569.5	2507.2
22.5°	2763.9	2699.0	2535.3	2439.6	2397.4
25°	2690.6	2600.3	2414.1	2298.7	2256.2
27.5°	2603.2	2507.2	2301.3	2168.8	2103.8
30°	2510.2	2402.7	2177.2	2033.5	1957.2
32.5°	2419.8	2290.0	2059.0	1889.6	1819.0
35°	2318.4	2174.4	1926.4	1748.7	1686.4
37.5°	2219.6	2064.4	1802.2	1607.4	1537.1
40°	2115.3	1946.2	1672.4	1472.2	1398.8
42.5°	2008.1	1827.7	1542.8	1334.0	1263.6
45°	1895.3	1706.2	1410.2	1209.8	1142.2
47.5°	1788.2	1588.0	1283.4	1082.9	1021.0
50°	1669.6	1469.5	1159.2	964.4	905.4
52.5°	1553.9	1342.3	1040.7	854.6	801.1
55°	1441.1	1221.2	916.5	747.4	693.9
57.5°	1325.6	1099.9	806.7	648.8	603.5
60°	1207.0	981.5	690.9	547.2	502.1
62.5°	1091.6	865.9	592.2	456.9	434.5
65°	973.1	744.4	490.7	395.0	386.3
67.5°	860.3	631.7	395.0	346.8	338.5
70°	741.8	521.9	327.1	298.9	287.6
72.5°	629.0	420.1	273.5	251.1	245.3
75°	518.9	321.4	225.6	205.9	203.2
77.5°	409.1	228.3	177.8	166.4	160.7
80°	307.3	163.7	135.3	124.1	124.1
82.5°	214.2	110.1	93.0	87.4	87.4
85°	121.2	61.9	53.5	53.5	53.5
87.5°	45.1	22.4	22.4	19.8	19.8
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

TEST NUMBER: P902408

CATALOG NUMBER: DFN2DIP-4P4F0-080D060US830-RLLFLL

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	10.17	11.05	11.08	11.98	13.16	6.13	7.02	7.04	7.94	9.12
	3H	11.86	12.65	12.78	13.58	14.79	7.33	8.12	8.25	9.05	10.26
	4H	12.47	13.22	13.41	14.16	15.37	7.78	8.53	8.72	9.46	10.68
	6H	12.90	13.59	13.85	14.53	15.76	8.11	8.79	9.05	9.74	10.97
	8H	13.03	13.69	13.99	14.65	15.87	8.20	8.85	9.15	9.81	11.04
	12H	13.10	13.72	14.06	14.67	15.93	8.24	8.87	9.20	9.82	11.07
4H	2H	10.20	10.94	11.14	11.88	13.10	6.74	7.48	7.68	8.42	9.64
	3H	12.04	12.66	12.99	13.62	14.86	8.09	8.71	9.05	9.68	10.91
	4H	12.73	13.30	13.70	14.26	15.52	8.65	9.21	9.61	10.17	11.43
	6H	13.26	13.74	14.23	14.73	15.99	9.07	9.56	10.04	10.54	11.80
	8H	13.44	13.89	14.41	14.87	16.14	9.20	9.65	10.18	10.63	11.90
	12H	13.54	13.95	14.53	14.94	16.22	9.27	9.68	10.26	10.67	11.95
8H	4H	12.71	13.16	13.68	14.14	15.41	8.93	9.39	9.91	10.37	11.64
	6H	13.28	13.66	14.28	14.68	15.94	9.46	9.83	10.46	10.85	12.12
	8H	13.50	13.83	14.51	14.84	16.13	9.65	9.98	10.66	10.99	12.28
	12H	13.65	13.94	14.66	14.94	16.27	9.77	10.06	10.78	11.07	12.40
12H	4H	12.66	13.07	13.66	14.07	15.34	8.94	9.35	9.94	10.35	11.62
	6H	13.26	13.59	14.27	14.60	15.88	9.51	9.84	10.52	10.85	12.13
	8H	13.48	13.78	14.50	14.78	16.11	9.72	10.01	10.73	11.02	12.35

END OF REPORT