

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: P902211

Luminaire Tested: DFN2DIP-4P3F0-030D060US830-FLONL

Issue Date: 11/21/2024

**Test Information**

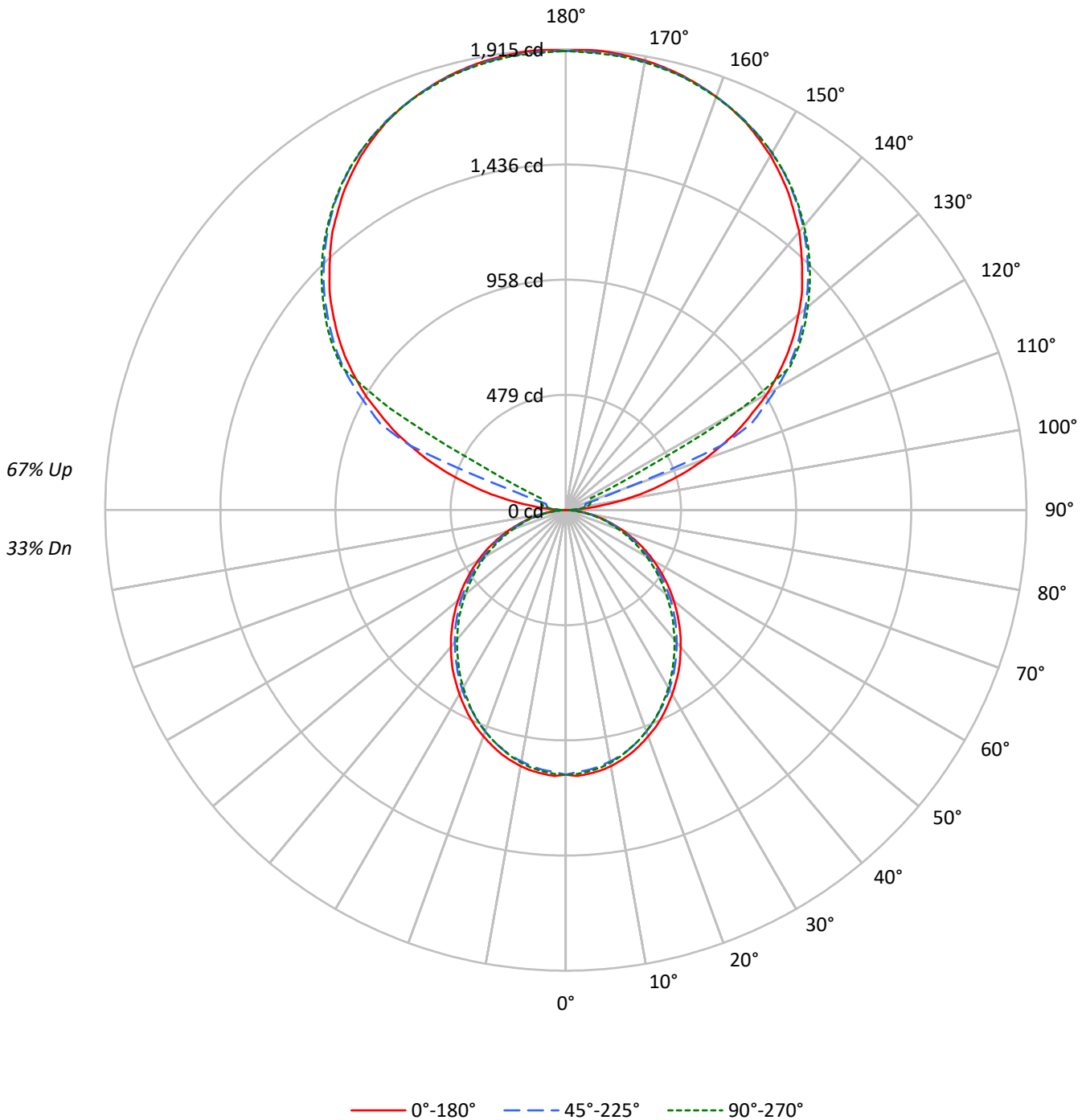
Test Method: LM-79-2019  
Report Number: P902211  
REPORT IS A COMBINATION OF REPORTS P900591 AND P897473  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-4P3F0-030D060US830-FLLONL  
Description: 3 foot, 90deg - 4way Define Geo, with Direct Frosted Lens, Indirect Open No Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 8398.1 lumens  
Efficiency: N/A  
Efficacy: 114.9 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29  
Luminous Opening: Rectangular w/ Sides (W: 3.07' x L: 3.07' x H: 0.1')  
CIE Type: Semi-Indirect  
  
Input Watts (W): 73.1  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.9933  
Total Harmonic Distortion (THDi): 0.066  
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				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	103	103	103	103	93	93	93	93	74	74	74	57	57	57	41	41	41	33				33
1	94	90	86	83	85	81	78	75	65	63	61	50	48	47	36	35	34	28				28
2	86	78	72	67	77	71	66	62	57	53	50	44	41	39	32	30	29	24				24
3	78	69	62	56	70	62	56	51	50	46	42	39	36	33	28	26	25	20				20
4	71	61	53	47	64	55	49	43	44	40	36	34	31	28	25	23	21	17				17
5	65	54	46	40	59	49	42	37	40	35	31	31	27	25	23	20	18	15				15
6	60	48	41	35	54	44	37	32	36	31	27	28	24	21	20	18	16	13				13
7	56	44	36	30	50	40	33	28	32	27	23	25	22	19	19	16	14	12				12
8	51	39	32	27	46	36	29	25	29	24	21	23	19	17	17	15	13	10				10
9	48	36	29	24	43	33	26	22	27	22	19	21	18	15	16	13	12	9				9
10	45	33	26	21	40	30	24	20	25	20	17	19	16	14	15	12	11	9				9

**AVERAGE LUMINANCE (cd/sqm):**

	0°	45°	90°
0°	1254	1254	1254
5°	1255	1236	1244
10°	1244	1218	1227
15°	1225	1197	1200
20°	1199	1169	1173
25°	1174	1134	1141
30°	1142	1103	1101
35°	1112	1065	1059
40°	1076	1027	1019
45°	1039	989	978
50°	998	950	930
55°	956	903	886
60°	908	849	836
65°	856	792	776
70°	790	723	712
75°	698	640	653
80°	586	533	540
85°	414	354	353

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 90°  
 Vertical Angle: 90°  
 Luminance: 1303 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	103.6	1.2
10°-20°	291.4	3.5
20°-30°	428.2	5.1
30°-40°	497.3	5.9
40°-50°	496.7	5.9
50°-60°	433.1	5.2
60°-70°	320.2	3.8
70°-80°	181.1	2.2
80°-90°	51.2	0.6
90°-100°	62.9	0.7
100°-110°	234.6	2.8
110°-120°	622.2	7.4
120°-130°	1032.0	12.3
130°-140°	1096.2	13.1
140°-150°	1018.8	12.1
150°-160°	819.1	9.8
160°-170°	527.8	6.3
170°-180°	181.7	2.2
0°-30°	823.1	9.8
0°-40°	1320.4	15.7
0°-60°	2250.3	26.8
0°-90°	2802.7	33.4
90°-120°	919.8	11.0
90°-150°	4066.8	48.4
90°-180°	5595.0	66.6
0°-180°	8398.1	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	1100	1100	1100	1100	1100	
5°	1100	1096	1084	1093	1091	104
15°	1047	1041	1027	1032	1026	295
25°	948	940	922	924	922	436
35°	818	807	790	784	779	511
45°	666	658	642	631	626	514
55°	504	497	485	472	467	450
65°	340	333	323	313	308	336
75°	178	176	170	164	166	190
85°	43	42	41	38	37	48
90°	1	17	28	35	37	8
95°	90	44	54	61	59	106
105°	420	461	84	99	105	449
115°	794	818	852	213	113	782
125°	1123	1141	1167	1177	1181	1001
135°	1389	1412	1424	1438	1435	1073
145°	1612	1610	1634	1643	1636	1008
155°	1775	1762	1779	1787	1776	818
165°	1870	1862	1866	1876	1866	528
175°	1913	1903	1906	1915	1902	182
180°	1909	1909	1909	1909	1909	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	1100.2	1100.2	1100.2	1100.2	1100.2
2.5°	1106.6	1101.4	1089.7	1100.2	1098.3
5°	1100.2	1096.1	1084.4	1092.9	1090.8
7.5°	1092.9	1086.6	1074.9	1083.5	1081.3
10°	1081.3	1073.8	1061.2	1069.6	1066.5
12.5°	1065.4	1059.0	1046.4	1051.6	1049.5
15°	1047.4	1041.1	1027.3	1031.5	1026.2
17.5°	1025.1	1018.9	1005.0	1010.3	1005.0
20°	1000.8	994.5	979.7	982.8	978.6
22.5°	976.6	967.0	953.2	953.2	951.0
25°	947.9	939.5	921.5	923.6	921.5
27.5°	916.2	908.7	895.0	891.9	886.6
30°	884.5	876.0	860.2	857.0	852.7
32.5°	850.6	844.3	827.4	821.0	816.7
35°	817.8	807.3	790.3	783.9	778.6
37.5°	780.8	771.3	754.3	746.9	741.6
40°	742.7	734.2	717.3	707.8	703.6
42.5°	705.7	697.2	680.3	669.7	663.4
45°	665.5	658.1	642.2	630.6	626.3
47.5°	626.3	619.0	602.0	590.3	584.0
50°	585.0	579.8	565.0	550.2	544.9
52.5°	544.9	537.4	523.8	512.1	504.6
55°	503.7	497.3	484.6	471.9	466.7
57.5°	462.3	457.0	443.3	430.6	426.3
60°	421.0	416.9	402.1	390.4	387.3
62.5°	380.9	373.4	362.9	352.3	348.1
65°	339.7	333.3	322.7	313.2	307.9
67.5°	297.4	292.0	282.5	275.1	270.9
70°	258.2	253.9	244.4	237.0	232.8
72.5°	218.0	213.7	208.4	201.0	197.9
75°	177.7	175.7	170.3	164.0	166.2
77.5°	141.8	137.5	135.3	132.2	129.1
80°	105.8	104.7	102.5	99.4	97.4
82.5°	71.9	71.9	71.0	66.6	66.6
85°	43.4	42.3	41.3	38.1	37.0
87.5°	19.0	17.0	14.8	11.7	10.6
90°	1.3	16.6	27.5	34.6	37.2
92.5°	34.6	29.0	33.1	35.9	37.2
95°	89.7	44.1	53.8	60.9	59.4
97.5°	161.6	48.4	70.3	74.6	76.0
100°	244.5	55.2	78.7	89.7	92.5
102.5°	335.5	332.9	81.5	96.6	100.9
105°	419.8	461.3	84.3	99.3	105.0
107.5°	517.9	552.3	87.1	102.2	107.7
110°	611.9	640.7	241.8	103.7	109.1



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**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	700.2	725.0	701.5	106.2	110.6
115°	794.1	817.6	852.2	212.7	113.3
117.5°	875.5	903.1	926.7	729.2	367.3
120°	966.8	987.4	1012.4	1028.9	842.4
122.5°	1044.0	1066.1	1093.8	1102.0	1103.5
125°	1122.8	1140.8	1167.0	1176.7	1180.7
127.5°	1194.6	1213.9	1234.7	1248.5	1249.8
130°	1262.3	1284.4	1299.5	1314.8	1313.4
132.5°	1331.3	1349.3	1364.4	1376.9	1375.5
135°	1389.4	1411.6	1423.8	1437.8	1434.9
137.5°	1450.0	1466.6	1480.5	1494.3	1490.3
140°	1509.4	1520.6	1535.7	1548.1	1541.2
142.5°	1559.2	1569.0	1586.9	1597.8	1590.9
145°	1611.7	1610.2	1633.7	1643.4	1636.5
147.5°	1657.2	1653.0	1676.5	1683.4	1678.0
150°	1701.5	1691.8	1713.9	1722.1	1715.2
152.5°	1738.7	1727.7	1748.3	1756.7	1747.0
155°	1774.6	1762.3	1778.9	1787.1	1776.0
157.5°	1803.6	1792.6	1805.1	1814.8	1803.6
160°	1828.5	1820.1	1828.5	1836.7	1827.1
162.5°	1850.5	1842.3	1849.2	1858.9	1846.4
165°	1869.9	1861.7	1865.8	1875.5	1865.8
167.5°	1885.1	1876.8	1881.0	1890.7	1878.2
170°	1897.6	1889.2	1892.1	1901.7	1889.2
172.5°	1905.8	1897.6	1900.4	1910.1	1897.6
175°	1912.7	1903.0	1905.8	1915.4	1901.7
177.5°	1915.4	1905.8	1907.2	1916.9	1904.5
180°	1908.6	1908.6	1908.6	1908.6	1908.6



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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	6.25	6.98	7.34	8.07	9.56	5.81	6.54	6.90	7.62	9.11
	3H	7.90	8.55	8.99	9.65	11.15	7.41	8.06	8.50	9.16	10.66
	4H	8.48	9.10	9.58	10.19	11.71	7.98	8.60	9.09	9.70	11.21
	6H	8.87	9.44	9.98	10.54	12.06	8.37	8.94	9.48	10.04	11.56
	8H	8.96	9.51	10.08	10.62	12.14	8.46	9.01	9.58	10.12	11.64
	12H	9.01	9.52	10.13	10.63	12.17	8.50	9.01	9.62	10.12	11.66
4H	2H	6.69	7.31	7.81	8.41	9.92	6.34	6.96	7.45	8.05	9.57
	3H	8.54	9.06	9.66	10.18	11.71	8.13	8.65	9.25	9.77	11.30
	4H	9.25	9.72	10.37	10.83	12.38	8.82	9.30	9.95	10.41	11.96
	6H	9.75	10.16	10.88	11.29	12.83	9.32	9.73	10.45	10.86	12.40
	8H	9.89	10.27	11.02	11.40	12.96	9.46	9.84	10.59	10.96	12.52
	12H	9.96	10.30	11.11	11.44	13.00	9.51	9.85	10.66	10.99	12.55
8H	4H	9.43	9.81	10.56	10.94	12.49	9.05	9.43	10.18	10.56	12.11
	6H	10.05	10.36	11.20	11.53	13.08	9.66	9.98	10.82	11.15	12.70
	8H	10.26	10.54	11.42	11.69	13.26	9.87	10.15	11.03	11.29	12.87
	12H	10.39	10.63	11.55	11.77	13.38	9.97	10.22	11.14	11.36	12.97
12H	4H	9.41	9.75	10.55	10.89	12.45	9.04	9.38	10.19	10.52	12.08
	6H	10.07	10.35	11.23	11.50	13.07	9.70	9.98	10.86	11.13	12.70
	8H	10.31	10.55	11.47	11.69	13.30	9.93	10.17	11.09	11.31	12.92