

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: P903501

Luminaire Tested: DFN2DIP-SQ2F0-040D050US830-FLLONL

Issue Date: 11/21/2024

**Test Information**

Test Method: LM-79-2019  
Report Number: P903501  
REPORT IS A COMBINATION OF REPORTS P901317 AND P898215  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-SQ2F0-040D050US830-FLONL  
Description: 2 foot, Square Define Geo, with Direct Frosted Lens, Indirect Open No Lens  
Light Source: -  
Ballast/Driver: -

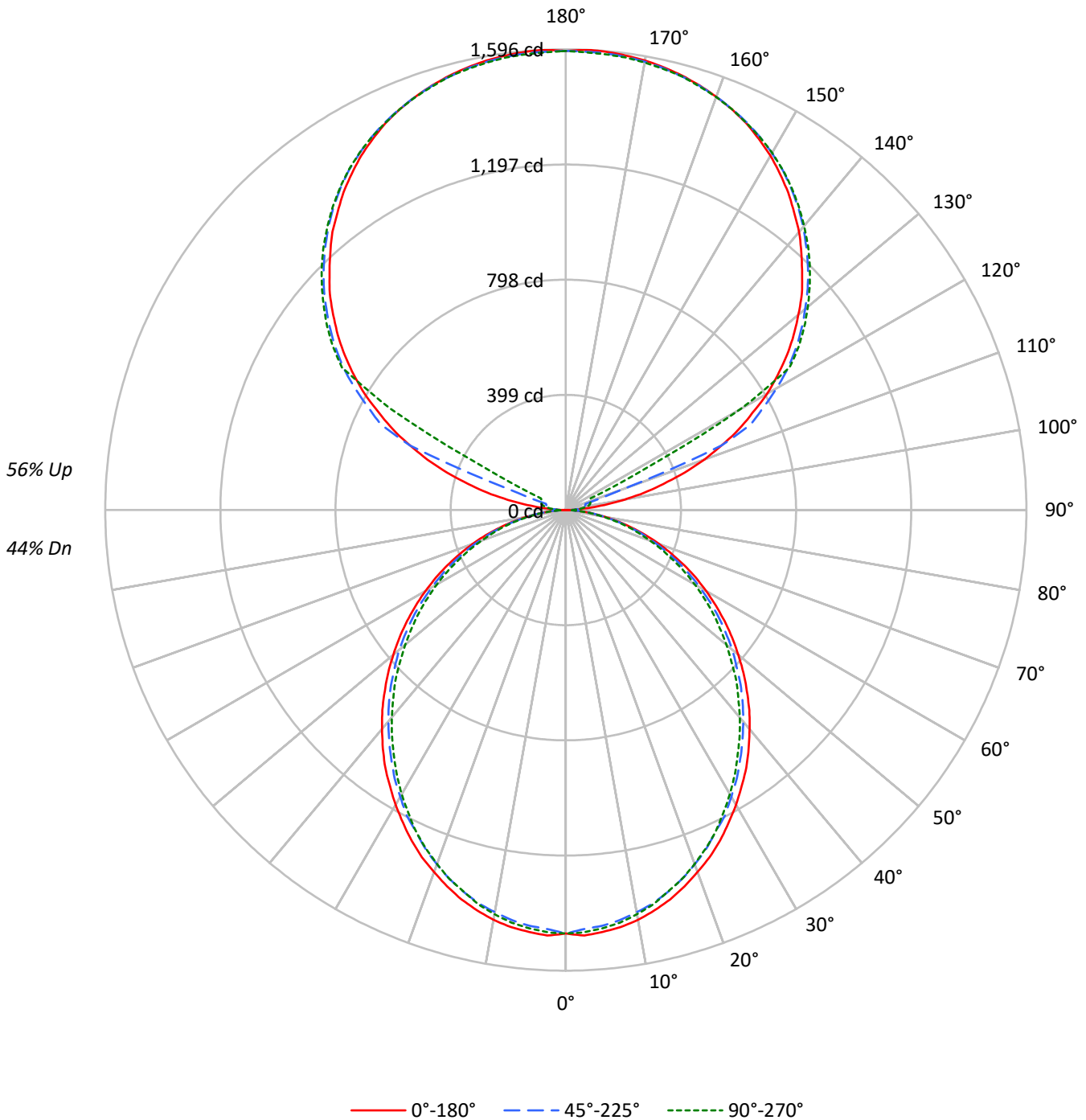
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 8398.1 lumens  
Efficiency: N/A  
Efficacy: 118.0 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: General Diffuse

Input Watts (W): 71.2  
Input Voltage (V): 120  
Input Current (A<sub>in</sub>): NR  
Voltage Rise (V): NR  
Power Factor: 0.9952  
Total Harmonic Distortion (THDi): 0.069  
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			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	106	106	106	106	97	97	97	97	80	80	80	65	65	65	51	51	51	44			44
1	97	92	88	85	88	85	81	78	70	68	66	57	56	54	45	44	43	37			37
2	88	81	74	69	80	74	69	64	62	58	55	50	48	45	40	38	36	31			31
3	80	71	64	58	73	65	59	54	54	50	46	44	41	38	35	33	31	27			27
4	73	63	55	49	67	58	51	46	48	43	39	40	36	33	31	29	27	23			23
5	67	56	48	42	61	51	44	39	43	38	34	35	31	28	28	25	23	20			20
6	62	50	42	36	57	46	39	34	39	33	29	32	28	25	26	23	20	17			17
7	57	45	37	32	52	42	35	30	35	30	26	29	25	22	23	20	18	15			15
8	53	41	33	28	49	38	31	26	32	27	23	27	23	20	22	19	16	14			14
9	49	37	30	25	45	35	28	23	29	24	20	25	20	18	20	17	15	12			12
10	46	34	27	22	42	32	25	21	27	22	18	23	19	16	18	15	13	11			11

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

	0°	45°	90°
0°	3226	3226	3226
5°	3225	3174	3198
10°	3194	3124	3150
15°	3141	3066	3078
20°	3072	2987	3004
25°	3003	2895	2920
30°	2918	2808	2813
35°	2837	2708	2701
40°	2739	2605	2594
45°	2640	2503	2485
50°	2532	2395	2358
55°	2419	2270	2241
60°	2290	2123	2106
65°	2148	1969	1948
70°	1968	1782	1775
75°	1723	1558	1610
80°	1422	1271	1308
85°	962	802	822

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 2640 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	138.1	1.6
10°-20°	388.5	4.6
20°-30°	570.9	6.8
30°-40°	663.1	7.9
40°-50°	662.3	7.9
50°-60°	577.5	6.9
60°-70°	426.9	5.1
70°-80°	241.5	2.9
80°-90°	66.6	0.8
90°-100°	52.5	0.6
100°-110°	195.5	2.3
110°-120°	518.5	6.2
120°-130°	860.0	10.2
130°-140°	913.5	10.9
140°-150°	849.0	10.1
150°-160°	682.6	8.1
160°-170°	439.8	5.2
170°-180°	151.4	1.8
0°-30°	1097.5	13.1
0°-40°	1760.6	21.0
0°-60°	3000.3	35.7
0°-90°	3735.3	44.5
90°-120°	766.5	9.1
90°-150°	3389.0	40.4
90°-180°	4663.0	55.5
0°-180°	8398.1	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	1467	1467	1467	1467	1467	
5°	1467	1461	1446	1457	1454	139
15°	1396	1388	1370	1375	1368	393
25°	1264	1253	1229	1231	1229	582
35°	1090	1076	1054	1045	1038	681
45°	887	878	856	841	835	685
55°	672	663	646	629	622	600
65°	453	444	430	418	411	448
75°	237	234	227	219	222	253
85°	58	56	55	51	49	64
90°	1	14	23	29	31	8
95°	75	37	45	51	50	89
105°	350	384	70	83	88	374
115°	662	681	710	177	94	651
125°	936	951	972	980	984	834
135°	1158	1176	1186	1198	1196	894
145°	1343	1342	1361	1370	1364	840
155°	1479	1469	1482	1489	1480	681
165°	1558	1551	1555	1563	1555	440
175°	1594	1586	1588	1596	1585	152
180°	1590	1590	1590	1590	1590	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	1467.0	1467.0	1467.0	1467.0	1467.0
2.5°	1475.5	1468.5	1452.9	1467.0	1464.3
5°	1467.0	1461.4	1445.9	1457.1	1454.4
7.5°	1457.1	1448.7	1433.1	1444.5	1441.7
10°	1441.7	1431.8	1414.9	1426.2	1421.9
12.5°	1420.4	1412.0	1395.2	1402.2	1399.3
15°	1396.5	1388.1	1369.7	1375.4	1368.4
17.5°	1366.9	1358.5	1340.1	1347.1	1340.1
20°	1334.4	1326.0	1306.3	1310.4	1304.9
22.5°	1302.0	1289.3	1270.9	1270.9	1268.1
25°	1263.9	1252.6	1228.7	1231.4	1228.7
27.5°	1221.5	1211.6	1193.4	1189.2	1182.2
30°	1179.3	1168.0	1146.9	1142.6	1137.0
32.5°	1134.2	1125.8	1103.2	1094.7	1088.9
35°	1090.4	1076.4	1053.8	1045.3	1038.2
37.5°	1041.0	1028.3	1005.7	995.9	988.8
40°	990.3	978.9	956.3	943.8	938.1
42.5°	940.9	929.5	907.1	892.9	884.5
45°	887.3	877.5	856.2	840.8	835.1
47.5°	835.1	825.2	802.7	787.1	778.7
50°	780.0	773.0	753.3	733.5	726.4
52.5°	726.4	716.6	698.3	682.8	672.9
55°	671.6	663.0	646.1	629.1	622.2
57.5°	616.4	609.4	591.0	574.1	568.4
60°	561.4	555.8	536.1	520.6	516.3
62.5°	507.8	497.9	483.9	469.8	464.1
65°	452.9	444.3	430.3	417.5	410.6
67.5°	396.4	389.3	376.7	366.8	361.2
70°	344.2	338.6	325.8	315.9	310.4
72.5°	290.7	284.9	278.0	268.1	263.8
75°	237.0	234.2	227.1	218.7	221.5
77.5°	189.0	183.3	180.5	176.3	172.1
80°	141.1	139.6	136.8	132.6	129.8
82.5°	96.0	96.0	94.6	88.9	88.9
85°	57.8	56.5	55.0	50.7	49.4
87.5°	25.4	22.6	19.8	15.6	14.0
90°	1.1	13.8	23.0	28.8	31.0
92.5°	28.8	24.2	27.6	30.0	31.0
95°	74.7	36.8	44.9	50.7	49.5
97.5°	134.6	40.3	58.6	62.2	63.2
100°	203.8	46.1	65.6	74.7	77.1
102.5°	279.7	277.4	68.0	80.5	84.1
105°	349.9	384.5	70.2	82.8	87.5
107.5°	431.6	460.2	72.6	85.1	89.8
110°	509.9	534.0	201.4	86.3	90.9



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**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	583.5	604.2	584.7	88.6	92.1
115°	661.8	681.3	710.1	177.3	94.4
117.5°	729.6	752.6	772.3	607.6	306.1
120°	805.6	822.8	843.6	857.4	702.0
122.5°	870.0	888.4	911.5	918.4	919.6
125°	935.6	950.6	972.5	980.5	984.0
127.5°	995.4	1011.5	1029.0	1040.4	1041.5
130°	1051.9	1070.4	1082.9	1095.6	1094.6
132.5°	1109.5	1124.5	1137.0	1147.5	1146.3
135°	1157.8	1176.3	1186.5	1198.2	1195.8
137.5°	1208.3	1222.2	1233.8	1245.3	1241.9
140°	1257.8	1267.2	1279.7	1290.1	1284.4
142.5°	1299.4	1307.5	1322.4	1331.5	1325.8
145°	1343.1	1341.9	1361.4	1369.5	1363.8
147.5°	1381.0	1377.5	1397.1	1402.9	1398.4
150°	1417.9	1409.9	1428.2	1435.1	1429.4
152.5°	1448.9	1439.7	1457.0	1464.0	1455.9
155°	1478.8	1468.6	1482.3	1489.2	1480.1
157.5°	1503.0	1493.8	1504.2	1512.3	1503.0
160°	1523.8	1516.8	1523.8	1530.6	1522.6
162.5°	1542.1	1535.3	1541.0	1549.1	1538.7
165°	1558.2	1551.4	1554.8	1562.8	1554.8
167.5°	1570.9	1564.0	1567.5	1575.6	1565.2
170°	1581.3	1574.3	1576.7	1584.7	1574.3
172.5°	1588.2	1581.3	1583.7	1591.7	1581.3
175°	1593.9	1585.8	1588.2	1596.2	1584.7
177.5°	1596.2	1588.2	1589.4	1597.4	1587.1
180°	1590.4	1590.4	1590.4	1590.4	1590.4



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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	10.69	11.51	11.70	12.52	13.87	10.25	11.06	11.25	12.08	13.42
	3H	12.33	13.06	13.34	14.08	15.45	11.84	12.57	12.85	13.59	14.96
	4H	12.90	13.59	13.93	14.62	16.00	12.41	13.10	13.44	14.13	15.50
	6H	13.29	13.92	14.32	14.95	16.34	12.79	13.42	13.82	14.45	15.84
	8H	13.38	13.99	14.42	15.03	16.42	12.88	13.49	13.92	14.53	15.92
	12H	13.42	14.00	14.47	15.04	16.45	12.91	13.49	13.96	14.53	15.94
4H	2H	11.14	11.83	12.17	12.85	14.23	10.78	11.47	11.81	12.50	13.87
	3H	12.98	13.55	14.02	14.61	16.00	12.57	13.14	13.61	14.20	15.59
	4H	13.67	14.20	14.72	15.25	16.66	13.25	13.78	14.30	14.82	16.23
	6H	14.17	14.62	15.22	15.69	17.10	13.73	14.19	14.79	15.26	16.66
	8H	14.31	14.73	15.36	15.79	17.21	13.87	14.29	14.93	15.35	16.78
	12H	14.37	14.75	15.44	15.83	17.25	13.92	14.30	15.00	15.38	16.81
8H	4H	13.85	14.28	14.91	15.34	16.76	13.48	13.90	14.53	14.96	16.38
	6H	14.46	14.81	15.54	15.91	17.33	14.07	14.43	15.16	15.53	16.95
	8H	14.67	14.97	15.76	16.06	17.50	14.27	14.58	15.36	15.67	17.11
	12H	14.78	15.05	15.88	16.14	17.62	14.37	14.64	15.47	15.73	17.20
12H	4H	13.83	14.22	14.91	15.29	16.72	13.47	13.85	14.54	14.92	16.35
	6H	14.48	14.79	15.57	15.88	17.32	14.11	14.42	15.20	15.51	16.94
	8H	14.71	14.98	15.80	16.06	17.54	14.33	14.60	15.42	15.68	17.16