

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: P902553

Luminaire Tested: DFN2DIP-HX3F0-040D050US830-RLLONL

Issue Date: 11/21/2024

**Test Information**

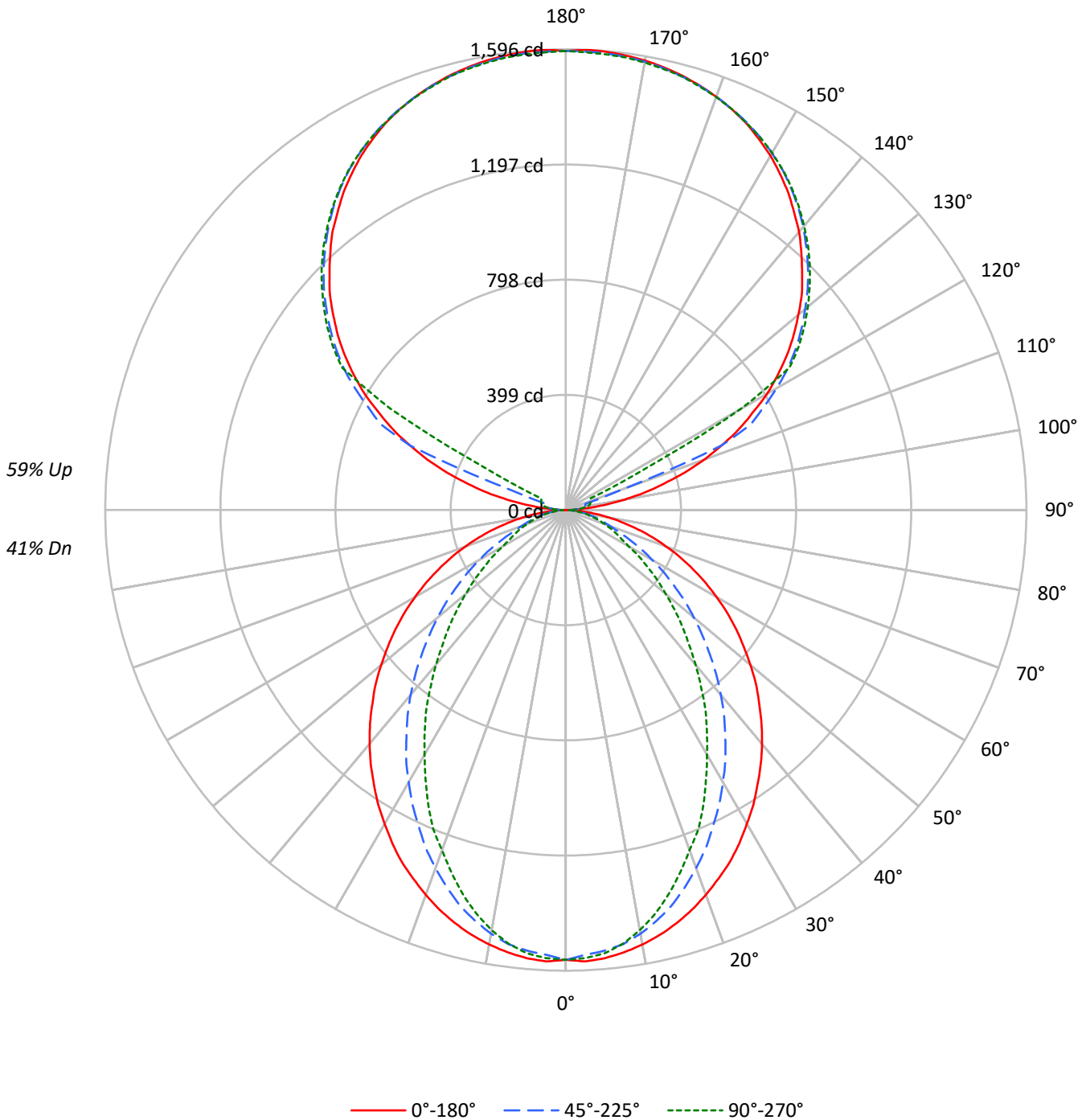
Test Method: LM-79-2019  
Report Number: P902553  
REPORT IS A COMBINATION OF REPORTS P900752 AND P897645  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-HX3F0-040D050US830-RLONL  
Description: 3 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 7870.2 lumens  
Efficiency: N/A  
Efficacy: 110.7 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16  
Luminous Opening: Rectangular w/ Sides (W: 2.84' x L: 3.28' x H: 0.1')  
CIE Type: General Diffuse  
  
Input Watts (W): 71.1  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.9968  
Total Harmonic Distortion (THDi): 0.064  
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	105	105	105	105	96	96	96	96	78	78	78	62	62	62	48	48	48	41				41
1	96	92	88	85	87	84	81	78	69	67	65	55	54	53	43	42	41	35				35
2	88	81	75	70	80	74	69	65	61	57	54	49	47	44	38	36	35	30				30
3	80	71	64	59	73	65	59	54	54	50	46	44	41	38	34	32	30	26				26
4	74	63	56	50	67	58	52	46	48	43	40	39	36	33	31	28	26	23				23
5	68	57	49	43	62	52	45	40	43	38	34	35	32	29	28	25	23	20				20
6	62	51	43	37	57	47	40	35	39	34	30	32	28	25	25	23	21	18				18
7	58	46	38	33	53	42	36	31	36	30	27	29	25	23	23	21	19	16				16
8	54	42	34	29	49	39	32	27	33	27	24	27	23	20	21	19	17	14				14
9	50	38	31	26	46	35	29	24	30	25	21	25	21	18	20	17	15	13				13
10	47	35	28	23	43	32	26	22	28	23	19	23	19	17	18	16	14	12				12

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

	0°	45°	90°
0°	1805	1805	1805
5°	1807	1775	1787
10°	1788	1739	1728
15°	1763	1680	1637
20°	1729	1600	1526
25°	1695	1510	1418
30°	1650	1418	1283
35°	1605	1319	1164
40°	1559	1217	1027
45°	1506	1104	904
50°	1452	990	783
55°	1394	868	667
60°	1328	741	548
65°	1252	611	492
70°	1159	491	444
75°	1042	430	402
80°	873	357	345
85°	597	233	254

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 1506 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	146.0	1.9
10°-20°	400.9	5.1
20°-30°	562.8	7.2
30°-40°	613.5	7.8
40°-50°	563.9	7.2
50°-60°	442.9	5.6
60°-70°	288.3	3.7
70°-80°	148.4	1.9
80°-90°	40.7	0.5
90°-100°	52.5	0.7
100°-110°	195.5	2.5
110°-120°	518.5	6.6
120°-130°	860.0	10.9
130°-140°	913.5	11.6
140°-150°	849.0	10.8
150°-160°	682.6	8.7
160°-170°	439.8	5.6
170°-180°	151.4	1.9
0°-30°	1109.8	14.1
0°-40°	1723.3	21.9
0°-60°	2730.1	34.7
0°-90°	3207.4	40.8
90°-120°	766.5	9.7
90°-150°	3389.0	43.1
90°-180°	4663.0	59.2
0°-180°	7870.2	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	1558	1558	1558	1558	1558	
5°	1558	1551	1533	1546	1541	148
15°	1482	1466	1419	1392	1378	418
25°	1345	1300	1207	1149	1128	619
35°	1159	1087	963	874	843	726
45°	948	853	705	605	571	732
55°	721	611	458	374	347	644
65°	486	372	245	198	193	482
75°	259	161	113	103	102	274
85°	61	31	27	27	27	70
90°	1	14	23	29	31	7
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°	1558.2	1558.2	1558.2	1558.2	1558.2
2.5°	1565.3	1558.2	1542.7	1556.9	1554.0
5°	1558.2	1551.1	1532.8	1545.5	1541.3
7.5°	1545.5	1537.1	1517.4	1522.9	1515.9
10°	1528.6	1518.7	1490.5	1486.2	1477.9
12.5°	1507.5	1494.8	1456.6	1448.2	1432.7
15°	1482.1	1466.5	1418.6	1391.9	1377.8
17.5°	1452.5	1429.8	1370.6	1339.6	1317.0
20°	1418.6	1390.3	1319.8	1284.7	1253.6
22.5°	1382.0	1349.5	1267.6	1219.7	1198.7
25°	1345.3	1300.1	1207.0	1149.3	1128.0
27.5°	1301.7	1253.6	1150.7	1084.4	1051.9
30°	1255.1	1201.4	1088.5	1016.7	978.6
32.5°	1209.9	1145.0	1029.4	944.8	909.5
35°	1159.2	1087.2	963.2	874.3	843.2
37.5°	1109.8	1032.2	901.1	803.7	768.5
40°	1057.6	973.1	836.2	736.1	699.5
42.5°	1004.0	913.8	771.4	666.9	631.8
45°	947.6	853.1	705.1	604.9	571.1
47.5°	894.1	794.0	641.7	541.5	510.5
50°	834.8	734.7	579.6	482.2	452.7
52.5°	776.9	671.2	520.4	427.3	400.5
55°	720.6	610.6	458.3	373.7	346.9
57.5°	662.8	550.0	403.3	324.3	301.8
60°	603.5	490.7	345.4	273.6	251.1
62.5°	545.8	433.0	296.1	228.5	217.3
65°	486.5	372.2	245.3	197.5	193.1
67.5°	430.2	315.8	197.5	173.4	169.2
70°	370.9	260.9	163.5	149.5	143.7
72.5°	314.5	210.1	136.8	125.5	122.7
75°	259.4	160.7	112.8	102.9	101.6
77.5°	204.5	114.1	88.9	83.2	80.3
80°	153.6	81.8	67.6	62.1	62.1
82.5°	107.2	55.0	46.6	43.6	43.6
85°	60.6	31.0	26.8	26.8	26.8
87.5°	22.6	11.2	11.2	9.9	9.9
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	8.23	8.99	9.27	10.03	11.43	4.20	4.96	5.24	6.00	7.40
	3H	9.89	10.57	10.94	11.62	13.04	5.38	6.06	6.43	7.11	8.53
	4H	10.49	11.13	11.55	12.19	13.61	5.83	6.47	6.89	7.52	8.95
	6H	10.90	11.49	11.97	12.55	13.99	6.14	6.73	7.21	7.79	9.22
	8H	11.02	11.59	12.10	12.66	14.09	6.22	6.79	7.30	7.86	9.29
	12H	11.08	11.61	12.16	12.68	14.14	6.26	6.80	7.34	7.86	9.32
4H	2H	8.24	8.88	9.30	9.93	11.36	4.78	5.43	5.85	6.48	7.91
	3H	10.05	10.58	11.12	11.66	13.10	6.12	6.66	7.20	7.74	9.18
	4H	10.73	11.22	11.81	12.29	13.75	6.66	7.15	7.74	8.22	9.69
	6H	11.24	11.66	12.32	12.75	14.20	7.08	7.50	8.16	8.59	10.04
	8H	11.41	11.80	12.49	12.88	14.35	7.20	7.59	8.29	8.68	10.15
	12H	11.49	11.85	12.60	12.95	14.42	7.26	7.61	8.36	8.71	10.19
8H	4H	10.69	11.09	11.78	12.17	13.64	6.93	7.33	8.02	8.41	9.88
	6H	11.25	11.57	12.36	12.70	14.17	7.44	7.77	8.55	8.90	10.36
	8H	11.46	11.74	12.58	12.85	14.34	7.63	7.91	8.75	9.02	10.51
	12H	11.59	11.84	12.71	12.94	14.47	7.74	7.99	8.86	9.10	10.62
12H	4H	10.64	11.00	11.75	12.10	13.57	6.94	7.29	8.04	8.39	9.86
	6H	11.22	11.51	12.34	12.62	14.10	7.49	7.78	8.61	8.88	10.37
	8H	11.44	11.69	12.56	12.79	14.32	7.69	7.94	8.81	9.05	10.57