

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: P921669

Luminaire Tested: DFN2DIP-HX3F0-050D040US940-RLLONL

Issue Date: 11/21/2024

**Test Information**

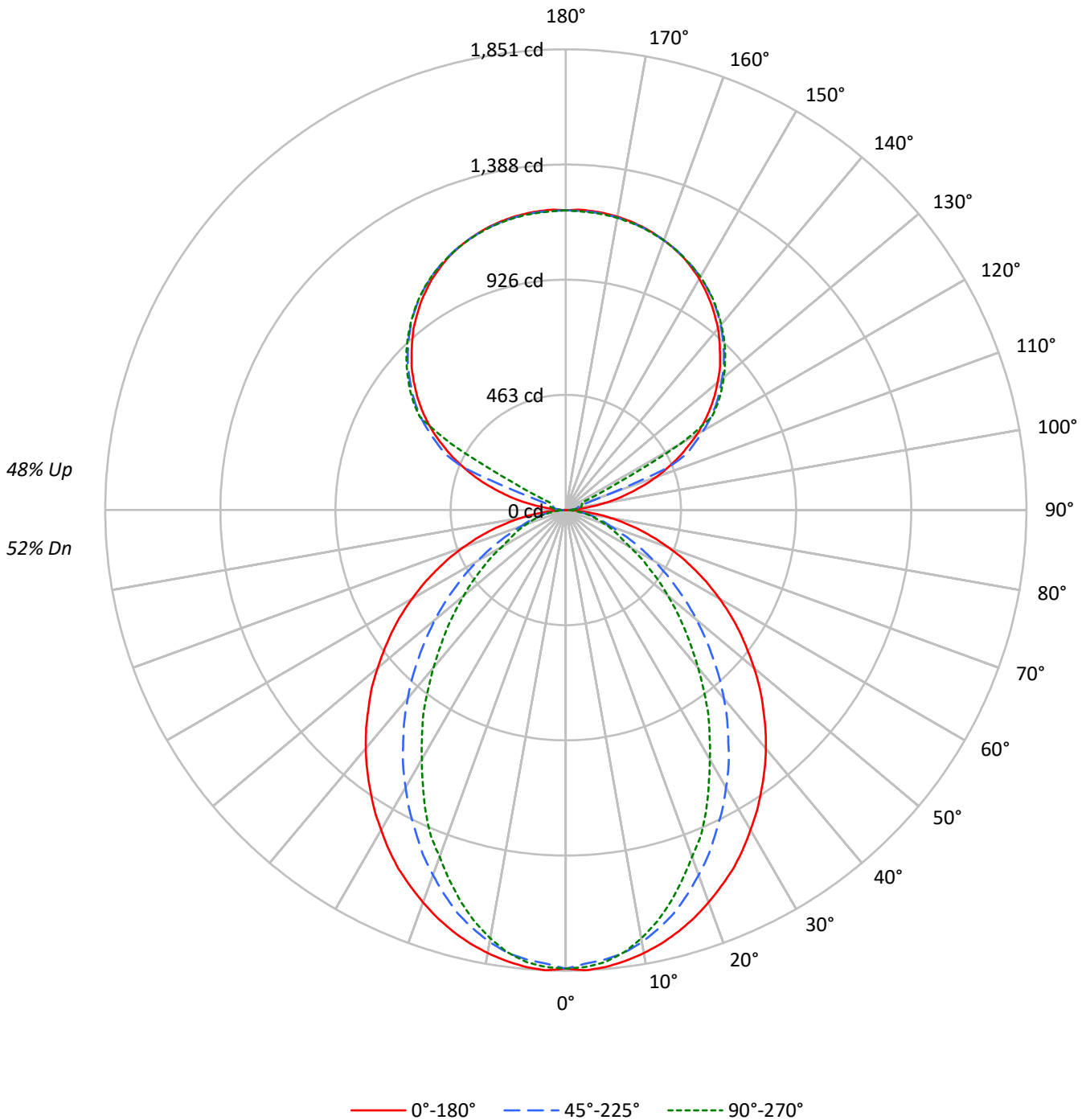
Test Method: LM-79-2019  
Report Number: P921669  
REPORT IS A COMBINATION OF REPORTS P900740 AND P897645  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-HX3F0-050D040US940-RLONL  
Description: 3 foot, 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: 7321.0 lumens  
Efficiency: N/A  
Efficacy: 98.3 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): 74.5  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.9951  
Total Harmonic Distortion (THDi): 0.07  
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	108	108	108	108	99	99	99	99	84	84	84	70	70	70	58	58	58	52	52	52	52
1	99	95	91	87	91	88	84	82	75	72	70	63	61	60	52	51	50	45	45	45	45
2	90	83	77	72	83	77	72	68	66	62	59	56	53	51	46	44	43	38	38	38	38
3	83	74	66	61	76	68	62	57	59	54	50	50	46	43	41	39	37	33	33	33	33
4	76	65	58	52	70	61	54	49	52	47	43	45	41	38	37	35	32	29	29	29	29
5	70	59	51	45	64	55	48	42	47	42	38	40	36	33	34	31	28	25	25	25	25
6	65	53	45	39	60	49	42	37	43	37	33	37	32	29	31	28	25	22	22	22	22
7	60	48	40	35	55	45	38	33	39	33	29	33	29	26	28	25	23	20	20	20	20
8	56	44	36	31	51	41	34	29	36	30	26	31	26	23	26	23	20	18	18	18	18
9	52	40	32	28	48	37	31	26	33	27	24	28	24	21	24	21	19	16	16	16	16
10	48	37	30	25	45	34	28	24	30	25	21	26	22	19	23	19	17	15	15	15	15

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

	0°	45°	90°
0°	2134	2134	2134
5°	2137	2099	2113
10°	2115	2056	2043
15°	2085	1987	1936
20°	2045	1892	1804
25°	2005	1786	1677
30°	1951	1677	1517
35°	1898	1560	1376
40°	1844	1439	1215
45°	1781	1305	1069
50°	1717	1170	926
55°	1649	1026	789
60°	1570	876	648
65°	1480	723	582
70°	1371	581	525
75°	1233	509	475
80°	1033	422	408
85°	706	275	300

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 1781 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	172.7	2.4
10°-20°	474.1	6.5
20°-30°	665.6	9.1
30°-40°	725.6	9.9
40°-50°	666.9	9.1
50°-60°	523.7	7.2
60°-70°	340.9	4.7
70°-80°	175.5	2.4
80°-90°	46.9	0.6
90°-100°	39.7	0.5
100°-110°	148.0	2.0
110°-120°	392.4	5.4
120°-130°	650.9	8.9
130°-140°	691.4	9.4
140°-150°	642.6	8.8
150°-160°	516.6	7.1
160°-170°	332.9	4.5
170°-180°	114.6	1.6
0°-30°	1312.4	17.9
0°-40°	2038.0	27.8
0°-60°	3228.6	44.1
0°-90°	3791.9	51.8
90°-120°	580.1	7.9
90°-150°	2565.0	35.0
90°-180°	3529.0	48.2
0°-180°	7321.0	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	1843	1843	1843	1843	1843	
5°	1843	1834	1813	1828	1823	175
15°	1753	1734	1678	1646	1629	494
25°	1591	1538	1427	1359	1334	732
35°	1371	1286	1139	1034	997	858
45°	1121	1009	834	715	675	865
55°	852	722	542	442	410	761
65°	575	440	290	234	228	570
75°	307	190	133	122	120	324
85°	72	37	32	32	32	82
90°	1	10	17	22	24	7
95°	56	28	34	38	38	67
105°	265	291	53	63	66	283
115°	501	516	537	134	72	493
125°	708	720	736	742	745	632
135°	876	890	898	907	905	677
145°	1016	1016	1030	1036	1032	636
155°	1119	1112	1122	1127	1120	516
165°	1179	1174	1177	1183	1177	333
175°	1206	1200	1202	1208	1199	115
180°	1204	1204	1204	1204	1204	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	1842.7	1842.7	1842.7	1842.7	1842.7
2.5°	1851.0	1842.7	1824.4	1841.1	1837.7
5°	1842.7	1834.4	1812.7	1827.6	1822.7
7.5°	1827.6	1817.8	1794.4	1801.0	1792.6
10°	1807.7	1796.0	1762.7	1757.7	1747.7
12.5°	1782.7	1767.7	1722.6	1712.7	1694.2
15°	1752.7	1734.3	1677.7	1646.0	1629.3
17.5°	1717.6	1691.0	1620.9	1584.2	1557.5
20°	1677.7	1644.2	1560.8	1519.3	1482.5
22.5°	1634.3	1595.9	1499.1	1442.5	1417.6
25°	1590.9	1537.5	1427.4	1359.1	1334.0
27.5°	1539.3	1482.5	1360.8	1282.4	1244.0
30°	1484.3	1420.8	1287.4	1202.4	1157.3
32.5°	1430.8	1354.1	1217.5	1117.3	1075.6
35°	1370.8	1285.8	1139.1	1033.9	997.2
37.5°	1312.4	1220.7	1065.7	950.5	908.9
40°	1250.7	1150.8	988.8	870.5	827.2
42.5°	1187.4	1080.7	912.2	788.7	747.2
45°	1120.7	1008.9	833.8	715.3	675.3
47.5°	1057.3	939.0	758.8	640.3	603.7
50°	987.3	868.9	685.5	570.2	535.4
52.5°	918.8	793.7	615.4	505.3	473.7
55°	852.1	722.0	541.9	441.9	410.3
57.5°	783.8	650.4	477.0	383.6	356.9
60°	713.7	580.3	408.5	323.6	296.9
62.5°	645.4	512.0	350.2	270.2	256.9
65°	575.3	440.2	290.2	233.5	228.5
67.5°	508.6	373.5	233.5	205.1	200.1
70°	438.6	308.5	193.4	176.7	170.0
72.5°	371.9	248.4	161.8	148.5	145.1
75°	306.8	190.0	133.4	121.7	120.1
77.5°	241.8	135.0	105.1	98.4	95.0
80°	181.7	96.8	80.0	73.4	73.4
82.5°	126.7	65.1	55.0	51.6	51.6
85°	71.7	36.6	31.7	31.7	31.7
87.5°	26.8	13.3	13.3	11.7	11.7
90°	0.8	10.4	17.4	21.8	23.5
92.5°	21.8	18.3	20.9	22.6	23.5
95°	56.5	27.8	33.9	38.3	37.5
97.5°	101.9	30.5	44.4	47.1	47.9
100°	154.2	34.9	49.7	56.5	58.3
102.5°	211.6	210.0	51.4	60.9	63.6
105°	264.7	291.0	53.1	62.7	66.2
107.5°	326.6	348.4	54.9	64.5	67.9
110°	385.9	404.1	152.5	65.4	68.8



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**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	441.7	457.3	442.5	67.1	69.7
115°	500.8	515.6	537.4	134.1	71.5
117.5°	552.2	569.6	584.5	459.9	231.7
120°	609.8	622.8	638.5	649.0	531.4
122.5°	658.4	672.4	689.9	695.1	696.0
125°	708.1	719.5	736.0	742.2	744.8
127.5°	753.4	765.6	778.7	787.5	788.3
130°	796.1	810.1	819.6	829.2	828.4
132.5°	839.6	851.0	860.6	868.4	867.6
135°	876.3	890.3	898.0	906.8	905.1
137.5°	914.5	925.0	933.8	942.4	939.9
140°	952.0	959.0	968.6	976.4	972.1
142.5°	983.5	989.5	1000.9	1007.7	1003.4
145°	1016.5	1015.7	1030.4	1036.5	1032.2
147.5°	1045.2	1042.6	1057.4	1061.8	1058.4
150°	1073.1	1067.0	1081.0	1086.2	1081.8
152.5°	1096.6	1089.7	1102.7	1108.0	1101.9
155°	1119.3	1111.5	1121.9	1127.1	1120.2
157.5°	1137.6	1130.6	1138.5	1144.6	1137.6
160°	1153.2	1148.0	1153.2	1158.4	1152.4
162.5°	1167.2	1162.0	1166.4	1172.4	1164.6
165°	1179.4	1174.2	1176.8	1182.9	1176.8
167.5°	1189.0	1183.7	1186.4	1192.5	1184.6
170°	1196.9	1191.6	1193.3	1199.4	1191.6
172.5°	1202.0	1196.9	1198.6	1204.7	1196.9
175°	1206.3	1200.2	1202.0	1208.1	1199.4
177.5°	1208.1	1202.0	1202.9	1209.1	1201.2
180°	1203.8	1203.8	1203.8	1203.8	1203.8



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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	9.90	10.75	10.85	11.71	12.96	5.88	6.73	6.83	7.69	8.93
	3H	11.58	12.33	12.54	13.30	14.57	7.07	7.82	8.03	8.79	10.06
	4H	12.18	12.89	13.15	13.87	15.15	7.51	8.23	8.49	9.20	10.48
	6H	12.60	13.25	13.58	14.23	15.52	7.83	8.49	8.82	9.47	10.76
	8H	12.72	13.34	13.71	14.34	15.63	7.92	8.55	8.91	9.54	10.83
	12H	12.78	13.37	13.77	14.36	15.67	7.96	8.56	8.96	9.55	10.86
4H	2H	9.92	10.64	10.90	11.61	12.89	6.47	7.19	7.45	8.16	9.44
	3H	11.75	12.34	12.73	13.34	14.64	7.82	8.41	8.81	9.42	10.71
	4H	12.43	12.97	13.43	13.97	15.29	8.36	8.91	9.36	9.90	11.22
	6H	12.94	13.41	13.95	14.43	15.74	8.78	9.25	9.79	10.26	11.58
	8H	13.11	13.55	14.12	14.56	15.89	8.91	9.34	9.92	10.35	11.68
	12H	13.20	13.59	14.23	14.62	15.96	8.97	9.36	10.00	10.39	11.72
8H	4H	12.40	12.83	13.41	13.85	15.18	8.64	9.08	9.65	10.09	11.42
	6H	12.96	13.32	13.99	14.37	15.70	9.15	9.51	10.19	10.57	11.89
	8H	13.17	13.49	14.21	14.53	15.87	9.34	9.66	10.38	10.70	12.04
	12H	13.30	13.58	14.35	14.62	16.01	9.46	9.73	10.50	10.77	12.16
12H	4H	12.35	12.74	13.38	13.77	15.11	8.65	9.04	9.67	10.07	11.40
	6H	12.93	13.25	13.98	14.29	15.64	9.20	9.52	10.24	10.56	11.90
	8H	13.15	13.43	14.19	14.46	15.85	9.41	9.69	10.45	10.72	12.11