

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: P924353

Luminaire Tested: DFN2DIP-HX3F0-030D050US950-RLLONL

Issue Date: 11/21/2024

**Test Information**

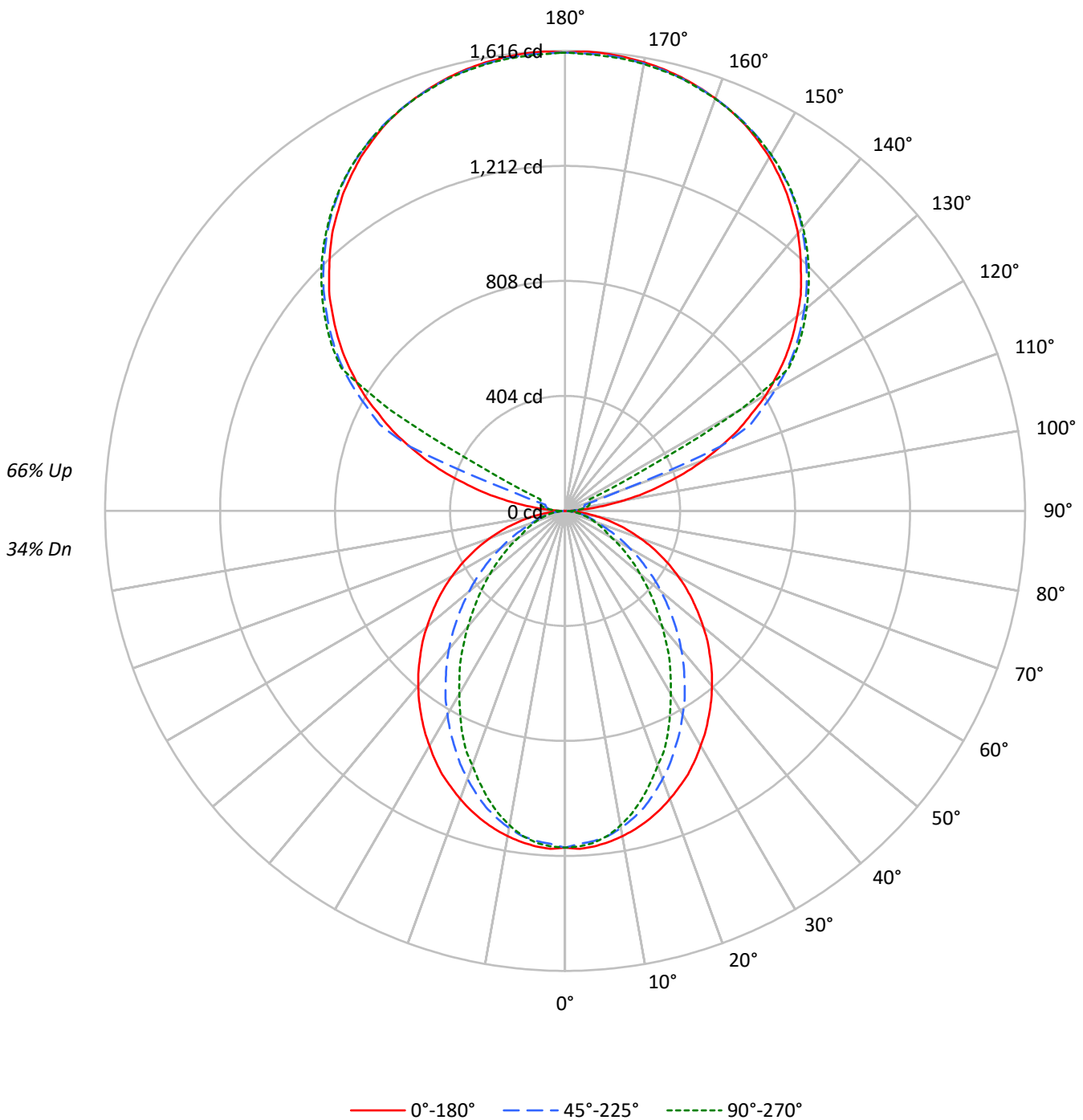
Test Method: LM-79-2019  
Report Number: P924353  
REPORT IS A COMBINATION OF REPORTS P900750 AND P897645  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-HX3F0-030D050US950-RLONL  
Description: 3 foot, 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: 7155.0 lumens  
Efficiency: N/A  
Efficacy: 118.7 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: Semi-Indirect  
  
Input Watts (W): 60.3  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.983  
Total Harmonic Distortion (THDi): 0.073  
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	34				34
1	95	90	87	83	85	82	79	76	66	64	62	51	49	48	37	36	36	29				29
2	86	79	74	69	78	72	67	63	58	54	52	45	43	41	33	32	30	25				25
3	79	70	63	58	71	63	58	53	51	47	44	40	37	35	30	28	26	22				22
4	72	62	55	49	65	56	50	45	46	41	37	36	33	30	27	25	23	19				19
5	66	55	48	42	60	50	44	39	41	36	32	32	29	26	24	22	20	17				17
6	61	50	42	36	55	45	39	34	37	32	28	29	26	23	22	20	18	15				15
7	57	45	37	32	51	41	34	30	34	29	25	27	23	20	20	18	16	13				13
8	52	41	33	28	47	37	31	26	31	26	22	24	21	18	19	16	14	12				12
9	49	37	30	25	44	34	28	23	28	23	20	22	19	16	17	15	13	11				11
10	46	34	27	22	41	31	25	21	26	21	18	21	17	15	16	14	12	10				10

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

	0°	45°	90°
0°	1370	1370	1370
5°	1372	1348	1356
10°	1358	1320	1311
15°	1338	1276	1243
20°	1313	1214	1158
25°	1287	1146	1077
30°	1252	1076	974
35°	1218	1001	883
40°	1184	924	780
45°	1144	838	686
50°	1102	751	594
55°	1058	659	506
60°	1008	562	416
65°	950	464	374
70°	880	373	337
75°	791	327	305
80°	664	271	262
85°	453	176	192

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 1144 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	110.9	1.5
10°-20°	304.3	4.3
20°-30°	427.3	6.0
30°-40°	465.7	6.5
40°-50°	428.1	6.0
50°-60°	336.2	4.7
60°-70°	218.8	3.1
70°-80°	112.6	1.6
80°-90°	31.6	0.4
90°-100°	53.1	0.7
100°-110°	197.9	2.8
110°-120°	524.8	7.3
120°-130°	870.4	12.2
130°-140°	924.6	12.9
140°-150°	859.3	12.0
150°-160°	690.9	9.7
160°-170°	445.2	6.2
170°-180°	153.2	2.1
0°-30°	842.5	11.8
0°-40°	1308.2	18.3
0°-60°	2072.5	29.0
0°-90°	2435.5	34.0
90°-120°	775.8	10.8
90°-150°	3430.2	47.9
90°-180°	4719.0	66.0
0°-180°	7155.0	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	1183	1183	1183	1183	1183	
5°	1183	1178	1164	1173	1170	112
15°	1125	1113	1077	1057	1046	317
25°	1021	987	916	872	856	470
35°	880	825	731	664	640	551
45°	719	648	535	459	434	556
55°	547	464	348	284	263	489
65°	369	283	186	150	147	366
75°	197	122	86	78	77	208
85°	46	24	20	20	20	53
90°	1	14	23	29	31	7
95°	76	37	45	51	50	90
105°	354	389	71	84	88	378
115°	670	690	719	179	96	659
125°	947	962	984	992	996	845
135°	1172	1191	1201	1213	1210	905
145°	1359	1358	1378	1386	1380	850
155°	1497	1486	1500	1507	1498	690
165°	1577	1570	1574	1582	1574	446
175°	1613	1605	1608	1616	1604	154
180°	1610	1610	1610	1610	1610	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	1182.9	1182.9	1182.9	1182.9	1182.9
2.5°	1188.2	1182.9	1171.0	1181.8	1179.7
5°	1182.9	1177.5	1163.6	1173.2	1170.0
7.5°	1173.2	1166.8	1151.9	1156.1	1150.7
10°	1160.4	1152.9	1131.5	1128.2	1121.9
12.5°	1144.3	1134.7	1105.8	1099.4	1087.6
15°	1125.1	1113.2	1076.9	1056.6	1045.9
17.5°	1102.5	1085.5	1040.4	1017.0	999.8
20°	1076.9	1055.4	1001.9	975.3	951.6
22.5°	1049.1	1024.4	962.3	926.0	909.9
25°	1021.3	986.9	916.3	872.4	856.3
27.5°	988.1	951.6	873.5	823.2	798.5
30°	952.8	912.0	826.4	771.9	742.9
32.5°	918.4	869.2	781.5	717.2	690.4
35°	880.0	825.3	731.1	663.7	640.1
37.5°	842.5	783.5	684.0	610.1	583.5
40°	802.9	738.7	634.8	558.8	531.0
42.5°	762.2	693.7	585.6	506.3	479.6
45°	719.4	647.6	535.3	459.2	433.5
47.5°	678.7	602.7	487.1	411.0	387.5
50°	633.7	557.7	440.0	366.0	343.6
52.5°	589.8	509.5	395.1	324.4	304.0
55°	546.9	463.5	347.8	283.7	263.4
57.5°	503.1	417.5	306.2	246.2	229.1
60°	458.1	372.5	262.3	207.7	190.6
62.5°	414.3	328.7	224.8	173.4	164.9
65°	369.3	282.6	186.2	149.9	146.6
67.5°	326.6	239.7	149.9	131.7	128.4
70°	281.5	198.1	124.1	113.4	109.1
72.5°	238.7	159.4	103.8	95.3	93.1
75°	196.9	122.0	85.7	78.1	77.1
77.5°	155.2	86.6	67.4	63.2	61.0
80°	116.7	62.1	51.3	47.1	47.1
82.5°	81.3	41.8	35.3	33.2	33.2
85°	46.0	23.5	20.3	20.3	20.3
87.5°	17.2	8.5	8.5	7.5	7.5
90°	1.1	13.9	23.3	29.2	31.4
92.5°	29.2	24.5	28.0	30.3	31.4
95°	75.7	37.2	45.4	51.3	50.1
97.5°	136.2	40.8	59.3	63.0	64.0
100°	206.3	46.7	66.4	75.7	78.0
102.5°	283.1	280.8	68.8	81.5	85.1
105°	354.1	389.1	71.1	83.9	88.5
107.5°	436.8	465.8	73.5	86.1	90.9
110°	516.1	540.4	203.9	87.4	92.0



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**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	590.6	611.5	591.8	89.7	93.2
115°	669.8	689.6	718.7	179.4	95.6
117.5°	738.5	761.8	781.7	614.9	309.9
120°	815.4	832.8	853.8	867.9	710.5
122.5°	880.5	899.2	922.6	929.6	930.8
125°	946.9	962.2	984.3	992.4	996.0
127.5°	1007.5	1023.8	1041.5	1053.0	1054.2
130°	1064.7	1083.4	1096.1	1108.9	1107.9
132.5°	1123.0	1138.1	1150.8	1161.4	1160.3
135°	1171.9	1190.6	1200.9	1212.7	1210.3
137.5°	1223.0	1237.1	1248.8	1260.4	1257.0
140°	1273.1	1282.6	1295.2	1305.7	1300.0
142.5°	1315.2	1323.4	1338.5	1347.7	1341.9
145°	1359.4	1358.2	1378.0	1386.2	1380.3
147.5°	1397.8	1394.3	1414.1	1419.9	1415.4
150°	1435.1	1427.0	1445.6	1452.6	1446.7
152.5°	1466.5	1457.2	1474.7	1481.8	1473.5
155°	1496.8	1486.4	1500.4	1507.3	1498.1
157.5°	1521.2	1512.0	1522.5	1530.7	1521.2
160°	1542.3	1535.3	1542.3	1549.2	1541.1
162.5°	1560.8	1554.0	1559.7	1567.9	1557.4
165°	1577.2	1570.3	1573.7	1581.8	1573.7
167.5°	1590.0	1583.0	1586.6	1594.7	1584.2
170°	1600.5	1593.5	1595.9	1604.0	1593.5
172.5°	1607.5	1600.5	1602.9	1611.0	1600.5
175°	1613.3	1605.1	1607.5	1615.6	1604.0
177.5°	1615.6	1607.5	1608.7	1616.8	1606.3
180°	1609.8	1609.8	1609.8	1609.8	1609.8



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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	6.49	7.21	7.58	8.29	9.78	2.47	3.18	3.56	4.27	5.75
	3H	8.15	8.79	9.25	9.89	11.39	3.64	4.28	4.74	5.38	6.88
	4H	8.75	9.36	9.86	10.45	11.96	4.09	4.69	5.19	5.78	7.29
	6H	9.16	9.72	10.28	10.81	12.33	4.40	4.95	5.51	6.05	7.57
	8H	9.28	9.81	10.40	10.92	12.44	4.48	5.01	5.60	6.12	7.64
	12H	9.33	9.84	10.46	10.94	12.48	4.52	5.02	5.64	6.13	7.66
4H	2H	6.50	7.10	7.61	8.19	9.70	3.04	3.65	4.16	4.74	6.25
	3H	8.31	8.81	9.43	9.93	11.45	4.38	4.88	5.50	6.00	7.52
	4H	8.99	9.45	10.11	10.56	12.10	4.92	5.38	6.04	6.49	8.03
	6H	9.49	9.88	10.62	11.02	12.55	5.33	5.72	6.46	6.86	8.39
	8H	9.66	10.03	10.79	11.15	12.70	5.45	5.82	6.58	6.95	8.49
	12H	9.74	10.08	10.89	11.21	12.77	5.51	5.84	6.66	6.98	8.53
8H	4H	8.95	9.31	10.08	10.44	11.99	5.19	5.56	6.32	6.68	8.23
	6H	9.50	9.80	10.65	10.97	12.52	5.69	6.00	6.85	7.17	8.71
	8H	9.71	9.98	10.87	11.12	12.69	5.88	6.15	7.04	7.29	8.86
	12H	9.84	10.07	11.00	11.21	12.82	5.99	6.22	7.15	7.37	8.97
12H	4H	8.89	9.23	10.04	10.36	11.92	5.18	5.52	6.33	6.66	8.21
	6H	9.47	9.74	10.63	10.89	12.45	5.74	6.01	6.90	7.15	8.72
	8H	9.68	9.92	10.84	11.06	12.66	5.94	6.18	7.10	7.32	8.92