

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: P921560

Luminaire Tested: DFN2DIP-HX2F0-040D030US940-RLLFLL

Issue Date: 11/21/2024

**Test Information**

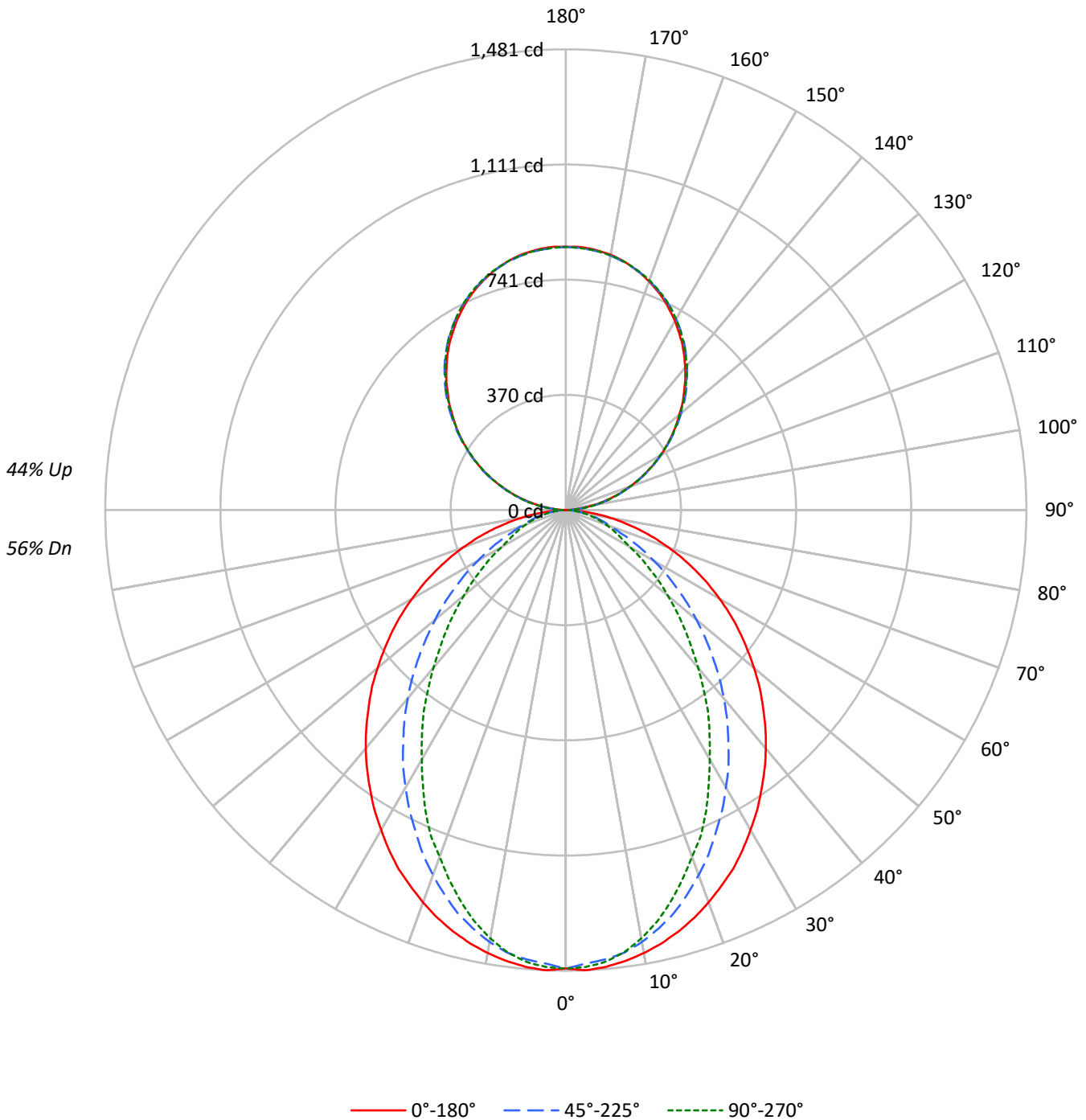
Test Method: LM-79-2019  
Report Number: P921560  
REPORT IS A COMBINATION OF REPORTS P899166 AND P896039  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-HX2F0-040D030US940-RLLFLL  
Description: 2 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 5399.3 lumens  
Efficiency: N/A  
Efficacy: 93.4 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16  
Luminous Opening: Rectangular w/ Sides (W: 1.99' x L: 2.3' x H: 0.1')  
CIE Type: General Diffuse  
  
Input Watts (W): 57.8  
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

TEST NUMBER: P921560  
CATALOG NUMBER: DFN2DIP-HX2F0-040D030US940-RLLFLL

### Luminous Intensity Polar Plot





TEST NUMBER: P921560

CATALOG NUMBER: DFN2DIP-HX2F0-040D030US940-RLLFLL

**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	109	109	109	109	101	101	101	101	87	87	87	74	74	74	62	62	62	56	56	56	56
1	100	96	92	88	93	89	86	83	77	75	72	66	64	63	55	54	53	48	48	48	48
2	91	84	78	73	85	79	73	69	68	64	61	58	56	53	49	47	46	41	41	41	41
3	84	74	67	62	78	70	63	58	61	56	52	52	49	46	44	42	40	36	36	36	36
4	77	66	59	53	71	62	55	50	54	49	45	47	43	40	40	37	35	31	31	31	31
5	71	59	51	46	66	56	49	43	49	43	39	42	38	35	36	33	30	27	27	27	27
6	65	53	46	40	61	50	43	38	44	38	34	38	34	31	33	30	27	24	24	24	24
7	61	48	41	35	56	46	39	34	40	35	30	35	31	27	30	27	24	22	22	22	22
8	56	44	37	31	52	42	35	30	37	31	27	32	28	25	28	25	22	20	20	20	20
9	53	41	33	28	49	38	32	27	34	28	25	30	25	22	26	23	20	18	18	18	18
10	49	37	30	25	46	35	29	24	31	26	22	28	23	20	24	21	18	16	16	16	16

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

	0°	45°	90°
0°	3473	3473	3473
5°	3473	3410	3434
10°	3434	3335	3316
15°	3381	3217	3137
20°	3313	3057	2920
25°	3243	2880	2711
30°	3151	2698	2448
35°	3061	2505	2216
40°	2969	2305	1953
45°	2863	2085	1714
50°	2752	1863	1481
55°	2636	1627	1258
60°	2502	1381	1030
65°	2347	1133	919
70°	2159	901	823
75°	1922	779	737
80°	1581	630	621
85°	1034	389	434

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 2863 cd/sqm



TEST NUMBER: P921560

CATALOG NUMBER: DFN2DIP-HX2F0-040D030US940-RLFL

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	138.2	2.6
10°-20°	379.3	7.0
20°-30°	532.5	9.9
30°-40°	580.5	10.8
40°-50°	533.5	9.9
50°-60°	419.0	7.8
60°-70°	272.7	5.1
70°-80°	140.4	2.6
80°-90°	38.2	0.7
90°-100°	52.3	1.0
100°-110°	166.3	3.1
110°-120°	284.7	5.3
120°-130°	374.4	6.9
130°-140°	420.2	7.8
140°-150°	412.1	7.6
150°-160°	345.7	6.4
160°-170°	229.2	4.2
170°-180°	80.1	1.5
0°-30°	1049.9	19.4
0°-40°	1630.4	30.2
0°-60°	2582.9	47.8
0°-90°	3034.2	56.2
90°-120°	503.4	9.3
90°-150°	1710.0	31.7
90°-180°	2365.0	43.8
0°-180°	5399.3	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	1474	1474	1474	1474	1474	
5°	1474	1468	1450	1462	1458	140
15°	1402	1387	1342	1317	1304	395
25°	1273	1230	1142	1087	1067	585
35°	1097	1029	911	827	798	686
45°	896	807	667	572	540	692
55°	682	578	434	354	328	609
65°	460	352	232	187	183	456
75°	245	152	107	97	96	260
85°	57	29	25	25	25	66
90°	1	9	25	24	24	5
95°	37	44	46	46	44	41
105°	154	156	157	158	158	162
115°	286	290	288	288	286	283
125°	416	422	420	418	417	371
135°	537	545	547	546	544	415
145°	652	658	662	662	660	408
155°	746	748	750	754	752	343
165°	812	811	811	816	812	229
175°	844	842	841	846	842	80
180°	846	846	846	846	846	



TEST NUMBER: P921560

CATALOG NUMBER: DFN2DIP-HX2F0-040D030US940-RLFL

**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	1474.2	1474.2	1474.2	1474.2	1474.2
2.5°	1480.9	1474.2	1459.5	1472.9	1470.2
5°	1474.2	1467.5	1450.1	1462.1	1458.2
7.5°	1462.1	1454.2	1435.6	1440.7	1434.1
10°	1446.2	1436.8	1410.2	1406.0	1398.2
12.5°	1426.2	1414.2	1378.0	1370.1	1355.4
15°	1402.1	1387.4	1342.1	1316.8	1303.5
17.5°	1374.1	1352.7	1296.6	1267.4	1246.0
20°	1342.1	1315.4	1248.7	1215.4	1186.0
22.5°	1307.4	1276.8	1199.3	1154.0	1134.1
25°	1272.7	1230.0	1141.9	1087.4	1067.2
27.5°	1231.5	1186.0	1088.6	1025.9	995.1
30°	1187.4	1136.6	1029.8	961.9	925.9
32.5°	1144.7	1083.2	973.9	893.9	860.4
35°	1096.7	1028.6	911.2	827.2	797.7
37.5°	1050.0	976.5	852.5	760.4	727.1
40°	1000.6	920.6	791.1	696.4	661.7
42.5°	949.8	864.5	729.8	631.0	597.7
45°	896.5	807.1	667.1	572.3	540.3
47.5°	845.9	751.2	607.1	512.3	483.0
50°	789.8	695.1	548.3	456.2	428.3
52.5°	735.0	635.0	492.3	404.2	378.9
55°	681.7	577.6	433.5	353.6	328.2
57.5°	627.1	520.3	381.6	306.8	285.5
60°	571.0	464.2	326.8	258.9	237.6
62.5°	516.4	409.7	280.1	216.2	205.5
65°	460.3	352.1	232.1	186.8	182.7
67.5°	407.0	298.8	186.8	164.1	160.1
70°	350.9	246.8	154.7	141.4	136.0
72.5°	297.6	198.8	129.4	118.8	116.1
75°	245.4	152.0	106.7	97.4	96.1
77.5°	193.5	108.0	84.1	78.7	76.0
80°	145.3	77.4	63.9	58.8	58.8
82.5°	101.4	52.1	44.1	41.3	41.3
85°	57.3	29.3	25.3	25.3	25.3
87.5°	21.4	10.6	10.6	9.4	9.4
90°	0.8	9.2	25.0	23.5	24.3
92.5°	15.8	21.4	22.2	22.9	22.9
95°	37.3	44.4	45.7	45.7	44.4
97.5°	62.0	68.6	71.4	71.4	71.4
100°	90.5	96.4	98.4	98.4	97.7
102.5°	120.6	125.0	127.8	128.6	127.8
105°	153.6	155.6	157.1	158.4	158.4
107.5°	186.2	189.2	189.2	189.8	186.2
110°	217.8	221.9	221.9	221.9	219.9



TEST NUMBER: P921560

CATALOG NUMBER: DFN2DIP-HX2F0-040D030US940-RLFL

**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	252.0	256.4	255.6	253.5	252.0
115°	285.7	289.7	288.5	287.8	285.7
117.5°	319.1	324.7	321.1	319.1	317.0
120°	352.8	358.4	352.8	352.8	350.4
122.5°	383.3	390.5	386.9	384.9	383.3
125°	415.5	421.9	419.8	417.5	416.8
127.5°	446.8	454.8	452.0	448.9	446.8
130°	476.2	485.4	484.1	482.6	479.7
132.5°	509.1	516.2	516.7	513.2	511.1
135°	537.4	545.3	546.9	546.1	544.0
137.5°	569.0	575.4	576.7	576.2	573.1
140°	596.8	603.2	606.8	606.8	604.0
142.5°	625.4	631.8	633.8	634.6	631.8
145°	652.5	657.5	661.6	662.4	659.6
147.5°	676.7	683.1	686.1	687.4	684.6
150°	701.7	706.1	708.8	711.1	708.8
152.5°	723.9	728.2	731.7	734.6	731.7
155°	746.1	748.1	750.4	753.9	751.7
157.5°	765.2	766.7	768.0	773.1	769.5
160°	782.3	783.8	784.6	788.9	785.9
162.5°	798.1	798.1	798.9	803.7	800.1
165°	811.6	810.8	810.8	815.9	812.3
167.5°	823.9	821.5	821.5	826.6	823.0
170°	833.0	831.0	830.3	835.4	831.0
172.5°	839.4	837.4	836.6	841.7	837.4
175°	844.5	842.5	841.0	846.1	841.7
177.5°	847.3	845.3	843.7	848.1	843.7
180°	846.1	846.1	846.1	846.1	846.1



TEST NUMBER: P921560  
 CATALOG NUMBER: DFN2DIP-HX2F0-040D030US940-RLLFLL

**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	11.90	12.78	12.80	13.70	14.88	7.88	8.76	8.79	9.68	10.87
	3H	13.55	14.34	14.47	15.27	16.48	9.05	9.84	9.97	10.78	11.98
	4H	14.15	14.89	15.08	15.83	17.05	9.49	10.24	10.43	11.18	12.40
	6H	14.55	15.24	15.50	16.18	17.41	9.80	10.49	10.75	11.43	12.66
	8H	14.67	15.32	15.62	16.28	17.51	9.89	10.54	10.84	11.50	12.73
	12H	14.72	15.34	15.68	16.30	17.55	9.93	10.55	10.88	11.50	12.75
4H	2H	11.92	12.66	12.86	13.60	14.82	8.46	9.21	9.41	10.15	11.37
	3H	13.72	14.34	14.67	15.31	16.54	9.80	10.42	10.75	11.39	12.62
	4H	14.40	14.96	15.36	15.92	17.18	10.34	10.90	11.30	11.86	13.12
	6H	14.89	15.38	15.86	16.36	17.62	10.74	11.23	11.71	12.21	13.47
	8H	15.05	15.51	16.03	16.49	17.75	10.86	11.31	11.84	12.29	13.56
	12H	15.14	15.55	16.13	16.54	17.82	10.92	11.33	11.91	12.32	13.60
8H	4H	14.36	14.82	15.34	15.80	17.07	10.61	11.06	11.58	12.04	13.31
	6H	14.90	15.28	15.90	16.30	17.57	11.10	11.48	12.10	12.50	13.77
	8H	15.10	15.44	16.11	16.44	17.73	11.28	11.61	12.29	12.62	13.91
	12H	15.23	15.52	16.24	16.52	17.85	11.39	11.68	12.40	12.68	14.01
12H	4H	14.32	14.73	15.31	15.72	17.00	10.61	11.02	11.60	12.01	13.29
	6H	14.88	15.21	15.89	16.22	17.50	11.15	11.48	12.15	12.49	13.77
	8H	15.08	15.37	16.10	16.38	17.71	11.34	11.63	12.35	12.64	13.97