

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: P919039

Luminaire Tested: DFN2DIP-HX3F0-090D050US935-FLLONL

Issue Date: 11/21/2024

**Test Information**

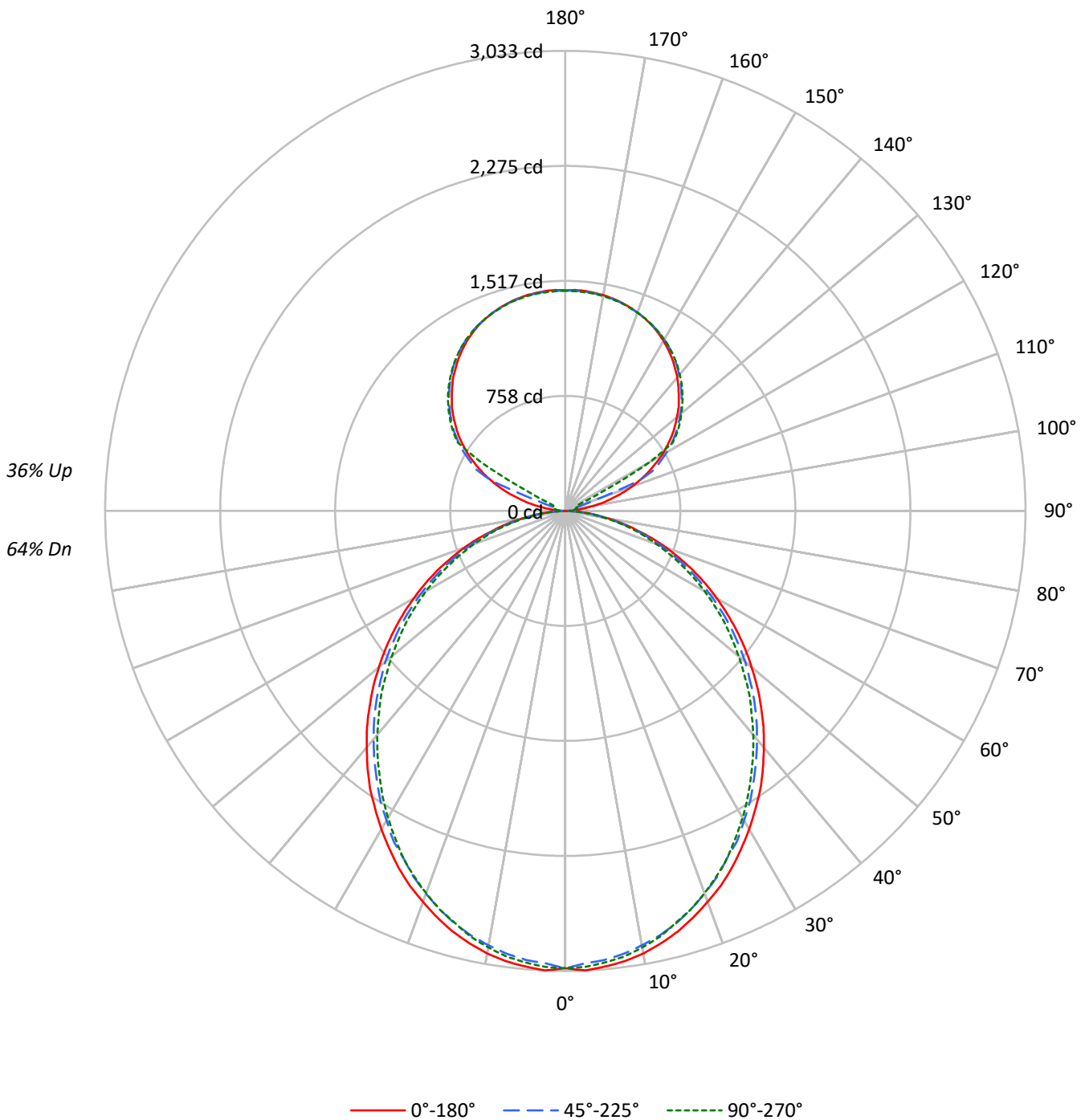
Test Method: LM-79-2019  
Report Number: P919039  
REPORT IS A COMBINATION OF REPORTS P900761 AND P897645  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-HX3F0-090D050US935-FLLONL  
Description: 3 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Open No Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 11933.5 lumens  
Efficiency: N/A  
Efficacy: 92.3 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29  
Luminous Opening: Rectangular w/ Sides (W: 2.84' x L: 3.28' x H: 0.1')  
CIE Type: Semi-Direct  
  
Input Watts (W): 129.3  
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

TEST NUMBER: P919039  
CATALOG NUMBER: DFN2DIP-HX3F0-090D050US935-FLLONL

### Luminous Intensity Polar Plot





TEST NUMBER: P919039

CATALOG NUMBER: DFN2DIP-HX3F0-090D050US935-FLLONL

**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	111	111	111	111	104	104	104	104	91	91	91	80	80	80	69	69	69	64	64	64	64
1	101	97	93	89	95	91	87	84	80	78	75	70	68	67	61	60	59	54	54	54	54
2	92	84	78	73	86	79	74	69	70	66	62	62	59	56	54	51	49	45	45	45	45
3	84	74	67	61	79	70	63	58	62	57	52	55	51	47	48	45	42	38	38	38	38
4	77	66	58	51	72	62	55	49	55	49	45	49	44	40	43	39	36	33	33	33	33
5	71	59	50	44	66	55	48	42	49	43	39	44	39	35	39	35	32	29	29	29	29
6	65	53	44	38	61	50	42	37	45	38	34	40	35	31	35	31	28	25	25	25	25
7	60	48	40	34	57	45	38	33	41	34	30	36	31	27	32	28	25	22	22	22	22
8	56	43	35	30	53	41	34	29	37	31	27	33	28	24	29	25	22	20	20	20	20
9	52	40	32	27	49	38	31	26	34	28	24	30	26	22	27	23	20	18	18	18	18
10	49	37	29	24	46	35	28	23	31	26	22	28	23	20	25	21	18	16	16	16	16

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

	0°	45°	90°
0°	3493	3493	3493
5°	3497	3442	3465
10°	3467	3393	3416
15°	3414	3334	3341
20°	3344	3254	3264
25°	3274	3159	3176
30°	3186	3070	3063
35°	3103	2966	2945
40°	3001	2861	2832
45°	2899	2755	2716
50°	2788	2643	2582
55°	2671	2515	2459
60°	2539	2362	2317
65°	2394	2204	2150
70°	2211	2011	1970
75°	1957	1780	1801
80°	1650	1484	1483
85°	1170	982	962

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 2899 cd/sqm



TEST NUMBER: P919039

CATALOG NUMBER: DFN2DIP-HX3F0-090D050US935-FLLONL

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	283.8	2.4
10°-20°	798.5	6.7
20°-30°	1173.4	9.8
30°-40°	1362.9	11.4
40°-50°	1361.2	11.4
50°-60°	1186.9	9.9
60°-70°	877.4	7.4
70°-80°	496.4	4.2
80°-90°	133.6	1.1
90°-100°	47.9	0.4
100°-110°	178.6	1.5
110°-120°	473.7	4.0
120°-130°	785.6	6.6
130°-140°	834.5	7.0
140°-150°	775.6	6.5
150°-160°	623.5	5.2
160°-170°	401.8	3.4
170°-180°	138.3	1.2
0°-30°	2255.7	18.9
0°-40°	3618.6	30.3
0°-60°	6166.7	51.7
0°-90°	7674.1	64.3
90°-120°	700.2	5.9
90°-150°	3095.8	25.9
90°-180°	4259.0	35.7
0°-180°	11933.5	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	3015	3015	3015	3015	3015	
5°	3015	3004	2972	2995	2989	286
15°	2870	2853	2815	2827	2812	808
25°	2598	2575	2526	2531	2526	1195
35°	2241	2212	2166	2148	2134	1400
45°	1824	1804	1760	1728	1716	1408
55°	1380	1363	1328	1293	1279	1234
65°	931	913	884	858	844	920
75°	487	481	467	449	455	520
85°	119	116	113	104	102	132
90°	1	13	21	26	28	11
95°	68	34	41	46	45	81
105°	320	351	64	76	80	342
115°	604	622	649	162	86	595
125°	855	868	888	896	899	762
135°	1058	1074	1084	1094	1092	817
145°	1227	1226	1244	1251	1246	767
155°	1351	1342	1354	1360	1352	622
165°	1423	1417	1420	1428	1420	402
175°	1456	1449	1451	1458	1448	139
180°	1453	1453	1453	1453	1453	



TEST NUMBER: P919039

CATALOG NUMBER: DFN2DIP-HX3F0-090D050US935-FLLONL

**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	3015.1	3015.1	3015.1	3015.1	3015.1
2.5°	3032.7	3018.2	2986.3	3015.1	3009.6
5°	3015.1	3003.8	2971.8	2994.9	2989.3
7.5°	2994.9	2977.7	2945.6	2969.1	2963.2
10°	2963.2	2942.9	2908.1	2931.2	2922.6
12.5°	2919.5	2902.3	2867.6	2881.9	2876.2
15°	2870.3	2853.1	2815.2	2826.9	2812.4
17.5°	2809.3	2792.1	2754.3	2768.8	2754.3
20°	2742.6	2725.4	2684.8	2693.4	2682.0
22.5°	2676.2	2650.1	2612.2	2612.2	2606.3
25°	2597.7	2574.6	2525.5	2531.0	2525.5
27.5°	2510.7	2490.4	2452.9	2444.3	2429.8
30°	2424.0	2400.5	2357.2	2348.5	2336.9
32.5°	2331.1	2313.8	2267.4	2249.9	2238.2
35°	2241.3	2212.3	2165.8	2148.4	2133.9
37.5°	2139.8	2113.6	2067.1	2046.9	2032.4
40°	2035.4	2012.1	1965.6	1939.7	1928.1
42.5°	1933.9	1910.6	1864.4	1835.2	1818.0
45°	1823.8	1803.5	1759.8	1728.1	1716.5
47.5°	1716.5	1696.2	1649.7	1617.7	1600.5
50°	1603.3	1588.8	1548.2	1507.6	1493.1
52.5°	1493.1	1472.8	1435.3	1403.3	1383.0
55°	1380.3	1362.7	1327.9	1293.2	1278.8
57.5°	1267.0	1252.6	1214.8	1180.0	1168.3
60°	1153.8	1142.5	1101.8	1069.9	1061.3
62.5°	1043.7	1023.4	994.5	965.6	953.9
65°	930.8	913.3	884.3	858.2	843.8
67.5°	814.8	800.1	774.2	754.0	742.3
70°	707.5	695.8	669.7	649.4	638.0
72.5°	597.4	585.7	571.2	551.0	542.3
75°	487.0	481.4	466.7	449.4	455.3
77.5°	388.5	376.9	371.0	362.4	353.8
80°	290.1	287.0	281.1	272.5	266.7
82.5°	197.2	197.2	194.4	182.7	182.7
85°	118.7	116.0	113.2	104.3	101.5
87.5°	52.3	46.4	40.6	32.0	28.9
90°	1.0	12.6	21.0	26.3	28.3
92.5°	26.3	22.1	25.2	27.4	28.3
95°	68.3	33.6	41.0	46.3	45.2
97.5°	123.0	36.9	53.6	56.8	57.8
100°	186.1	42.1	59.9	68.3	70.4
102.5°	255.5	253.4	62.1	73.5	76.8
105°	319.6	351.2	64.1	75.7	79.9
107.5°	394.3	420.4	66.3	77.7	82.1
110°	465.8	487.8	184.0	78.9	83.0



TEST NUMBER: P919039

CATALOG NUMBER: DFN2DIP-HX3F0-090D050US935-FLLONL

**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	533.0	551.9	534.1	80.9	84.1
115°	604.5	622.3	648.7	162.0	86.3
117.5°	666.5	687.5	705.5	555.0	279.7
120°	735.9	751.7	770.6	783.2	641.3
122.5°	794.7	811.6	832.7	839.0	840.1
125°	854.6	868.4	888.4	895.7	898.9
127.5°	909.3	924.0	940.0	950.4	951.4
130°	960.9	977.7	989.2	1000.8	999.9
132.5°	1013.5	1027.2	1038.6	1048.2	1047.1
135°	1057.6	1074.5	1083.8	1094.5	1092.3
137.5°	1103.8	1116.5	1127.0	1137.6	1134.5
140°	1149.0	1157.5	1169.0	1178.4	1173.3
142.5°	1187.0	1194.4	1208.0	1216.3	1211.1
145°	1226.9	1225.8	1243.6	1251.0	1245.8
147.5°	1261.5	1258.3	1276.3	1281.5	1277.4
150°	1295.2	1287.9	1304.7	1311.0	1305.7
152.5°	1323.5	1315.2	1330.9	1337.3	1329.9
155°	1350.9	1341.5	1354.1	1360.4	1352.0
157.5°	1372.9	1364.6	1374.1	1381.5	1372.9
160°	1392.0	1385.6	1392.0	1398.2	1390.9
162.5°	1408.7	1402.5	1407.6	1415.0	1405.6
165°	1423.4	1417.2	1420.3	1427.6	1420.3
167.5°	1435.0	1428.7	1431.9	1439.2	1429.8
170°	1444.5	1438.1	1440.3	1447.6	1438.1
172.5°	1450.8	1444.5	1446.6	1454.0	1444.5
175°	1456.0	1448.6	1450.8	1458.1	1447.6
177.5°	1458.1	1450.8	1451.9	1459.2	1449.7
180°	1452.8	1452.8	1452.8	1452.8	1452.8



TEST NUMBER: P919039  
 CATALOG NUMBER: DFN2DIP-HX3F0-090D050US935-FLLONL

**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	12.80	13.80	13.62	14.65	15.70	12.37	13.38	13.19	14.22	15.27
	3H	14.46	15.37	15.30	16.22	17.30	13.99	14.90	14.83	15.75	16.83
	4H	15.05	15.90	15.90	16.77	17.86	14.58	15.44	15.44	16.30	17.39
	6H	15.45	16.24	16.32	17.11	18.21	14.98	15.77	15.85	16.64	17.74
	8H	15.56	16.31	16.43	17.20	18.30	15.09	15.84	15.96	16.73	17.83
	12H	15.61	16.32	16.49	17.21	18.33	15.13	15.85	16.01	16.73	17.86
4H	2H	13.27	14.13	14.13	14.99	16.08	12.93	13.79	13.79	14.65	15.74
	3H	15.14	15.86	16.01	16.75	17.86	14.75	15.47	15.62	16.36	17.47
	4H	15.86	16.51	16.74	17.40	18.53	15.46	16.11	16.34	17.00	18.13
	6H	16.37	16.94	17.27	17.85	18.99	15.97	16.53	16.87	17.45	18.58
	8H	16.52	17.05	17.42	17.96	19.11	16.12	16.64	17.02	17.55	18.70
	12H	16.60	17.07	17.52	18.00	19.16	16.18	16.66	17.10	17.59	18.74
8H	4H	16.06	16.59	16.96	17.50	18.65	15.71	16.23	16.61	17.14	18.29
	6H	16.69	17.13	17.62	18.08	19.23	16.33	16.77	17.26	17.72	18.87
	8H	16.91	17.29	17.85	18.24	19.40	16.54	16.93	17.48	17.87	19.04
	12H	17.04	17.38	17.98	18.32	19.53	16.66	17.00	17.60	17.94	19.15
12H	4H	16.06	16.53	16.98	17.46	18.61	15.71	16.18	16.63	17.11	18.26
	6H	16.72	17.11	17.66	18.05	19.22	16.37	16.76	17.31	17.70	18.87
	8H	16.96	17.30	17.90	18.24	19.46	16.61	16.95	17.55	17.89	19.10