

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: P921733

Luminaire Tested: DFN2DIP-HX3F0-070D090US940-RLLFLL

Issue Date: 11/21/2024

**Test Information**

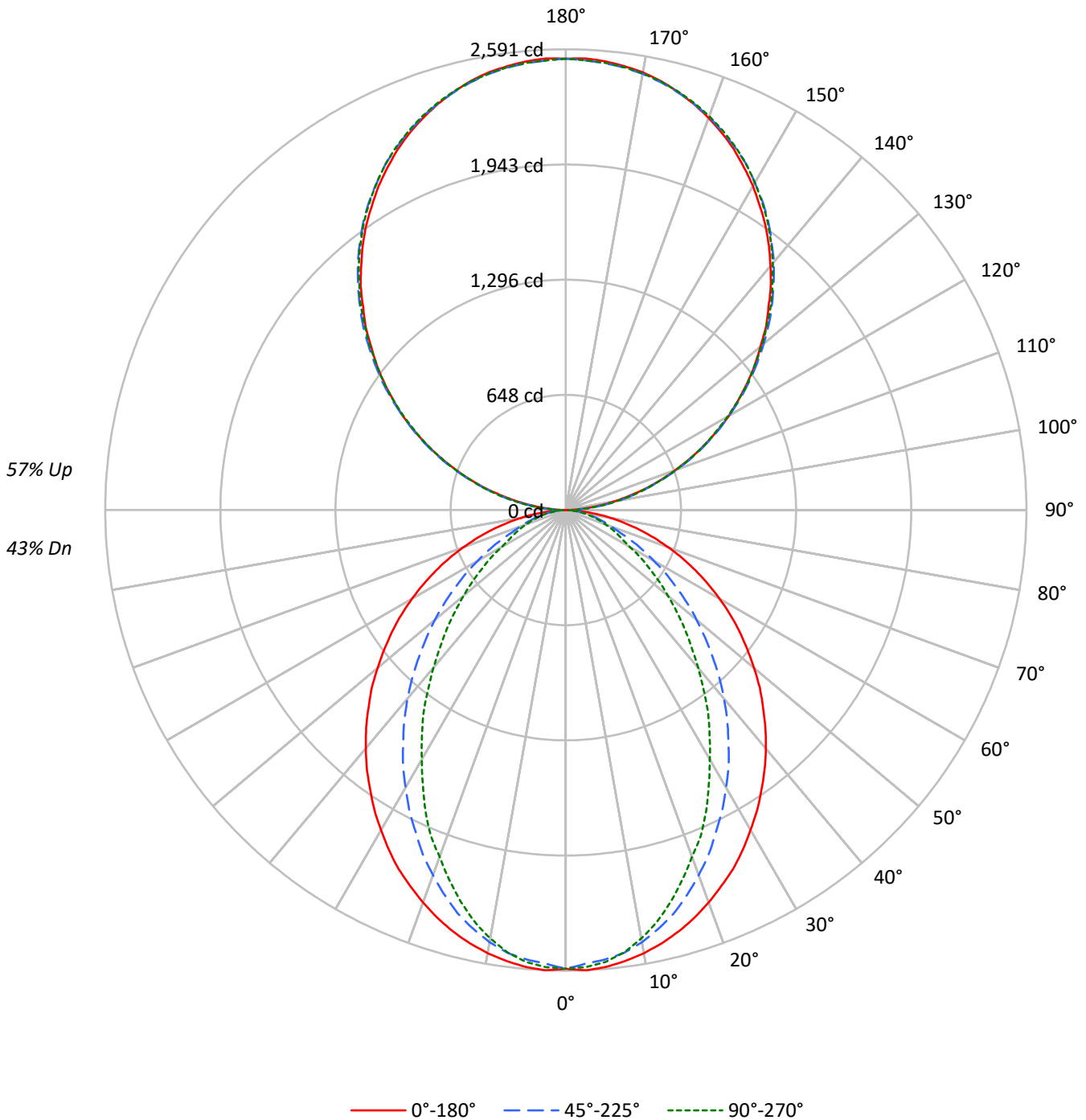
Test Method: LM-79-2019  
Report Number: P921733  
REPORT IS A COMBINATION OF REPORTS P899294 AND P896089  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-HX3F0-070D090US940-RLLFLL  
Description: 3 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 12408.1 lumens  
Efficiency: N/A  
Efficacy: 88.4 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): 140.3  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.9789  
Total Harmonic Distortion (THDi): 0.074  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 24 FT

TEST NUMBER: P921733  
CATALOG NUMBER: DFN2DIP-HX3F0-070D090US940-RLFL

### Luminous Intensity Polar Plot





TEST NUMBER: P921733

CATALOG NUMBER: DFN2DIP-HX3F0-070D090US940-RLFL

**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	105	105	105	105	96	96	96	96	79	79	79	64	64	64	50	50	50	50	50	50	43
1	97	92	89	85	88	85	82	79	70	68	66	57	55	54	44	43	43	44	43	43	37
2	88	81	75	70	80	74	69	65	62	58	55	50	48	46	40	38	36	40	38	36	32
3	81	72	65	59	74	66	60	55	55	51	47	45	42	39	35	33	32	35	33	32	27
4	74	64	56	50	68	59	52	47	49	44	40	40	37	34	32	30	28	32	30	28	24
5	68	57	49	43	62	52	46	41	44	39	35	36	32	30	29	26	24	29	26	24	21
6	63	51	43	38	57	47	40	35	40	35	31	33	29	26	26	24	22	26	24	22	19
7	58	46	39	33	53	43	36	31	36	31	27	30	26	23	24	21	19	24	21	19	17
8	54	42	35	29	49	39	32	28	33	28	24	28	24	21	22	19	17	22	19	17	15
9	50	38	31	26	46	36	29	25	30	25	22	25	22	19	21	18	16	21	18	16	14
10	47	35	28	24	43	33	27	22	28	23	20	23	20	17	19	16	14	19	16	14	12

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

	0°	45°	90°
0°	2988	2988	2988
5°	2992	2939	2958
10°	2961	2879	2860
15°	2919	2782	2710
20°	2863	2649	2526
25°	2807	2500	2348
30°	2731	2347	2124
35°	2657	2184	1927
40°	2582	2015	1701
45°	2494	1827	1496
50°	2403	1638	1296
55°	2308	1437	1104
60°	2199	1226	907
65°	2072	1013	815
70°	1919	813	735
75°	1726	712	665
80°	1447	591	571
85°	988	384	420

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 2494 cd/sqm



TEST NUMBER: P921733

CATALOG NUMBER: DFN2DIP-HX3F0-070D090US940-RLFL

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	241.8	1.9
10°-20°	663.7	5.3
20°-30°	931.9	7.5
30°-40°	1015.8	8.2
40°-50°	933.6	7.5
50°-60°	733.2	5.9
60°-70°	477.3	3.8
70°-80°	245.7	2.0
80°-90°	69.9	0.6
90°-100°	157.1	1.3
100°-110°	499.0	4.0
110°-120°	854.0	6.9
120°-130°	1123.1	9.1
130°-140°	1260.7	10.2
140°-150°	1236.2	10.0
150°-160°	1037.0	8.4
160°-170°	687.7	5.5
170°-180°	240.4	1.9
0°-30°	1837.4	14.8
0°-40°	2853.2	23.0
0°-60°	4520.0	36.4
0°-90°	5312.9	42.8
90°-120°	1510.1	12.2
90°-150°	5130.1	41.3
90°-180°	7095.0	57.2
0°-180°	12408.1	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	2580	2580	2580	2580	2580	
5°	2580	2568	2538	2559	2552	245
15°	2454	2428	2349	2304	2281	691
25°	2227	2152	1998	1903	1868	1024
35°	1919	1800	1595	1448	1396	1201
45°	1569	1412	1167	1002	946	1212
55°	1193	1011	759	619	574	1066
65°	806	616	406	327	320	799
75°	430	266	187	170	168	454
85°	100	51	44	44	44	115
90°	2	28	75	70	73	12
95°	112	133	137	137	133	124
105°	461	467	471	475	475	486
115°	857	869	865	863	857	848
125°	1246	1266	1260	1253	1250	1114
135°	1612	1636	1641	1638	1632	1246
145°	1957	1973	1985	1987	1979	1223
155°	2238	2244	2251	2262	2255	1030
165°	2435	2432	2432	2448	2437	687
175°	2534	2527	2523	2538	2525	241
180°	2538	2538	2538	2538	2538	



TEST NUMBER: P921733

CATALOG NUMBER: DFN2DIP-HX3F0-070D090US940-RLFL

**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	2579.8	2579.8	2579.8	2579.8	2579.8
2.5°	2591.4	2579.8	2554.0	2577.6	2572.9
5°	2579.8	2568.1	2537.7	2558.8	2551.8
7.5°	2558.8	2544.9	2512.2	2521.3	2509.7
10°	2530.8	2514.4	2467.8	2460.7	2446.8
12.5°	2495.8	2474.8	2411.6	2397.7	2371.9
15°	2453.7	2427.9	2348.7	2304.4	2281.1
17.5°	2404.7	2367.3	2269.2	2217.9	2180.5
20°	2348.7	2301.9	2185.2	2127.0	2075.5
22.5°	2288.0	2234.3	2098.7	2019.5	1984.6
25°	2227.3	2152.5	1998.4	1902.8	1867.7
27.5°	2155.0	2075.5	1905.1	1795.4	1741.6
30°	2078.0	1989.0	1802.2	1683.4	1620.2
32.5°	2003.1	1895.7	1704.4	1564.2	1505.7
35°	1919.1	1800.0	1594.7	1447.6	1396.1
37.5°	1837.5	1708.9	1491.9	1330.6	1272.5
40°	1751.0	1611.1	1384.4	1218.7	1158.0
42.5°	1662.3	1513.0	1277.1	1104.2	1046.1
45°	1569.0	1412.4	1167.4	1001.5	945.5
47.5°	1480.2	1314.6	1062.4	896.4	845.2
50°	1382.2	1216.5	959.6	798.3	749.6
52.5°	1286.3	1111.2	861.5	707.4	663.1
55°	1192.9	1010.8	758.7	618.8	574.4
57.5°	1097.3	910.5	667.8	537.0	499.6
60°	999.3	812.4	571.9	453.1	415.6
62.5°	903.6	716.8	490.2	378.3	359.6
65°	805.5	616.3	406.3	327.0	319.8
67.5°	712.1	522.9	327.0	287.0	280.2
70°	614.0	431.9	270.7	247.4	238.0
72.5°	520.7	347.8	226.4	207.9	203.1
75°	429.5	266.0	186.7	170.4	168.2
77.5°	338.6	189.0	147.1	137.7	133.0
80°	254.4	135.5	112.0	102.8	102.8
82.5°	177.4	91.1	77.0	72.3	72.3
85°	100.3	51.3	44.3	44.3	44.3
87.5°	37.4	18.5	18.5	16.3	16.3
90°	2.3	27.6	75.0	70.4	72.7
92.5°	47.4	64.3	66.6	68.8	68.8
95°	111.7	133.1	137.0	137.0	133.1
97.5°	185.9	205.8	214.3	214.3	214.3
100°	271.6	289.3	295.3	295.3	293.1
102.5°	361.9	375.0	383.3	385.7	383.3
105°	460.7	466.7	471.4	475.2	475.2
107.5°	558.6	567.8	567.8	569.3	558.6
110°	653.4	665.8	665.8	665.8	659.6



TEST NUMBER: P921733

CATALOG NUMBER: DFN2DIP-HX3F0-070D090US940-RLFL

**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	756.0	769.0	766.7	760.6	756.0
115°	857.0	869.2	865.4	863.2	857.0
117.5°	957.3	974.1	963.4	957.3	951.1
120°	1058.3	1075.0	1058.3	1058.3	1051.3
122.5°	1150.0	1171.5	1160.8	1154.7	1150.0
125°	1246.5	1265.6	1259.5	1252.6	1250.4
127.5°	1340.6	1364.3	1355.9	1346.8	1340.6
130°	1428.6	1456.2	1452.3	1447.7	1439.3
132.5°	1527.3	1548.7	1550.2	1539.5	1533.5
135°	1612.2	1635.9	1640.6	1638.3	1632.2
137.5°	1707.1	1726.3	1730.1	1728.6	1719.4
140°	1790.6	1809.6	1820.3	1820.3	1812.0
142.5°	1876.2	1895.3	1901.5	1903.8	1895.3
145°	1957.4	1972.6	1984.9	1987.2	1978.8
147.5°	2030.1	2049.2	2058.3	2062.2	2053.8
150°	2105.1	2118.1	2126.5	2133.3	2126.5
152.5°	2171.6	2184.6	2195.3	2203.8	2195.3
155°	2238.2	2244.3	2251.2	2261.9	2255.0
157.5°	2295.5	2300.2	2304.0	2319.2	2308.5
160°	2346.8	2351.4	2353.8	2366.7	2357.5
162.5°	2394.2	2394.2	2396.6	2411.1	2400.4
165°	2434.8	2432.5	2432.5	2447.8	2437.1
167.5°	2471.6	2464.7	2464.7	2479.9	2469.2
170°	2499.1	2493.0	2490.7	2506.0	2493.0
172.5°	2518.2	2512.1	2509.8	2525.1	2512.1
175°	2533.5	2527.4	2522.8	2538.2	2525.1
177.5°	2541.9	2535.8	2531.2	2544.2	2531.2
180°	2538.2	2538.2	2538.2	2538.2	2538.2



TEST NUMBER: P921733  
 CATALOG NUMBER: DFN2DIP-HX3F0-070D090US940-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	10.20	10.97	11.22	12.00	13.37	6.17	6.95	7.19	7.97	9.35
	3H	11.86	12.55	12.89	13.59	14.98	7.35	8.04	8.38	9.08	10.47
	4H	12.46	13.12	13.51	14.16	15.56	7.80	8.45	8.84	9.49	10.89
	6H	12.87	13.48	13.93	14.52	15.93	8.11	8.71	9.17	9.76	11.17
	8H	13.00	13.57	14.05	14.63	16.03	8.20	8.77	9.26	9.83	11.24
	12H	13.05	13.60	14.12	14.65	16.08	8.24	8.78	9.30	9.83	11.26
4H	2H	10.21	10.86	11.26	11.90	13.30	6.76	7.41	7.81	8.45	9.85
	3H	12.02	12.57	13.08	13.63	15.05	8.10	8.64	9.15	9.71	11.12
	4H	12.70	13.20	13.77	14.26	15.70	8.64	9.14	9.70	10.19	11.63
	6H	13.21	13.64	14.28	14.72	16.15	9.05	9.48	10.12	10.56	11.99
	8H	13.38	13.78	14.45	14.85	16.30	9.17	9.57	10.25	10.65	12.09
	12H	13.47	13.83	14.56	14.92	16.37	9.23	9.60	10.33	10.68	12.13
8H	4H	12.67	13.07	13.74	14.14	15.58	8.91	9.31	9.98	10.38	11.83
	6H	13.22	13.55	14.32	14.67	16.11	9.42	9.75	10.52	10.86	12.31
	8H	13.43	13.72	14.54	14.82	16.28	9.61	9.90	10.71	10.99	12.45
	12H	13.56	13.82	14.67	14.91	16.41	9.72	9.97	10.83	11.07	12.57
12H	4H	12.62	12.98	13.71	14.06	15.51	8.91	9.27	10.00	10.36	11.81
	6H	13.20	13.49	14.30	14.59	16.05	9.47	9.76	10.57	10.85	12.31
	8H	13.41	13.67	14.52	14.76	16.26	9.67	9.92	10.78	11.02	12.52