

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: P921711

Luminaire Tested: DFN2DIP-HX3F0-070D030US940-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P921711
REPORT IS A COMBINATION OF REPORTS P900729 AND P897645
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX3F0-070D030US940-FLONL
Description: 3 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

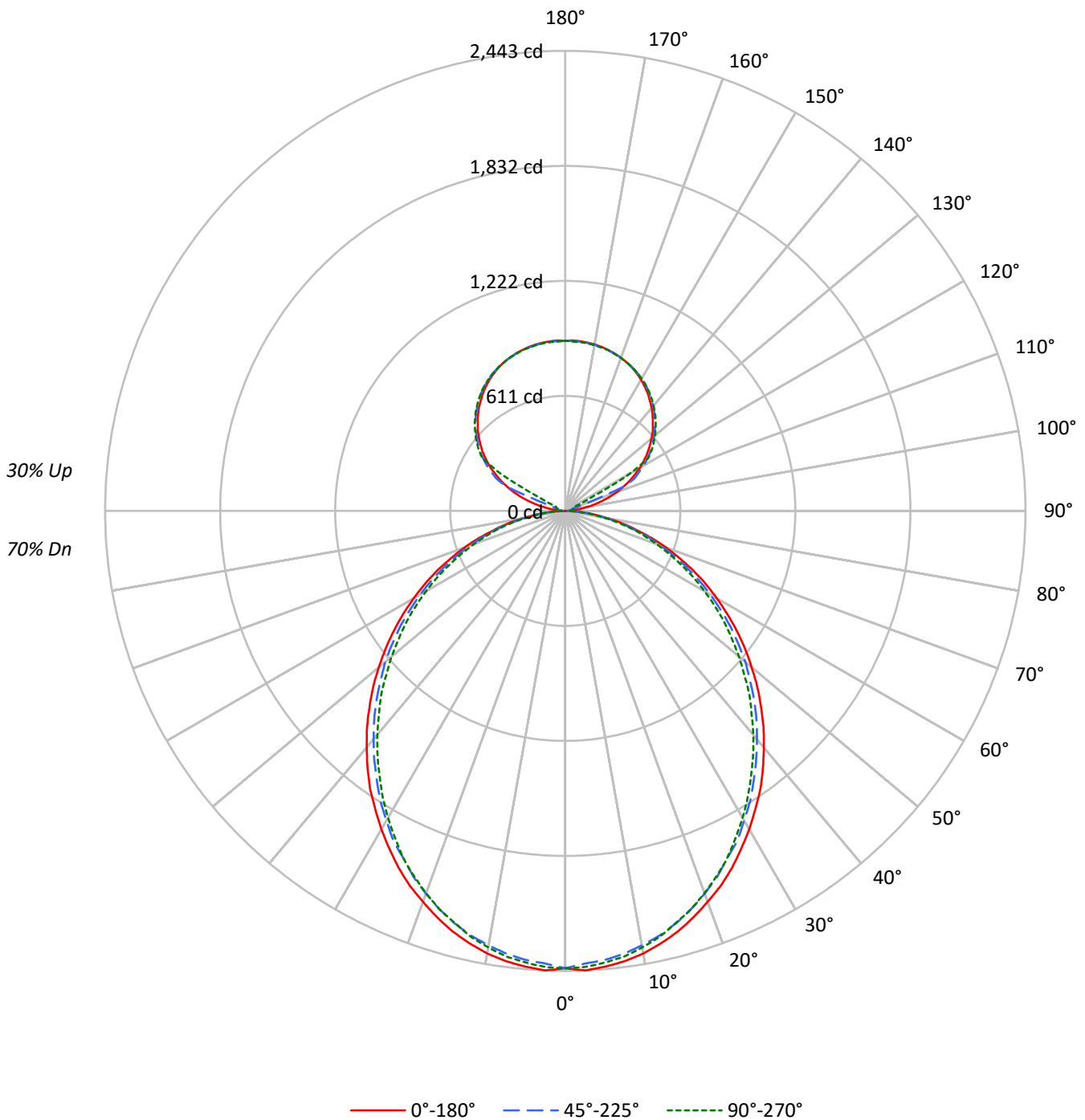
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 8828.0 lumens
Efficiency: N/A
Efficacy: 95.9 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): 92.1
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: P921711
CATALOG NUMBER: DFN2DIP-HX3F0-070D030US940-FLLONL

Luminous Intensity Polar Plot





TEST NUMBER: P921711

CATALOG NUMBER: DFN2DIP-HX3F0-070D030US940-FLONL

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	112	112	112	112	106	106	106	106	94	94	94	84	84	84	75	75	75	75	75	75	70
1	102	98	94	90	97	93	89	86	83	80	78	74	72	70	66	64	63	63	63	63	59
2	93	85	79	74	88	81	75	71	73	68	64	65	62	59	58	55	53	53	53	53	49
3	85	75	68	62	80	71	65	59	64	59	54	58	53	50	51	48	45	45	45	45	42
4	78	67	58	52	73	63	56	50	57	51	46	51	47	43	46	42	39	39	39	39	36
5	72	60	51	45	67	57	49	43	51	45	40	46	41	37	41	37	34	34	34	34	31
6	66	54	45	39	62	51	43	38	46	40	35	42	37	33	38	33	30	30	30	30	27
7	61	48	40	34	58	46	39	33	42	36	31	38	33	29	34	30	27	27	27	27	24
8	57	44	36	31	54	42	35	30	38	32	28	35	30	26	32	27	24	24	24	24	22
9	53	40	33	27	50	39	32	27	35	29	25	32	27	23	29	25	22	22	22	22	20
10	50	37	30	25	47	36	29	24	33	27	23	30	25	21	27	23	20	20	20	20	18

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2813	2813	2813
5°	2817	2772	2791
10°	2792	2733	2752
15°	2750	2686	2691
20°	2693	2622	2629
25°	2637	2545	2558
30°	2566	2473	2468
35°	2500	2389	2372
40°	2417	2304	2281
45°	2335	2219	2188
50°	2246	2129	2080
55°	2152	2026	1980
60°	2045	1903	1867
65°	1929	1776	1732
70°	1781	1620	1587
75°	1576	1434	1451
80°	1328	1196	1194
85°	943	791	775

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 2335 cd/sqm



TEST NUMBER: P921711

CATALOG NUMBER: DFN2DIP-HX3F0-070D030US940-FLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	228.6	2.6
10°-20°	643.2	7.3
20°-30°	945.2	10.7
30°-40°	1097.8	12.4
40°-50°	1096.5	12.4
50°-60°	956.1	10.8
60°-70°	706.8	8.0
70°-80°	399.9	4.5
80°-90°	107.1	1.2
90°-100°	29.8	0.3
100°-110°	111.0	1.3
110°-120°	294.3	3.3
120°-130°	488.2	5.5
130°-140°	518.5	5.9
140°-150°	481.9	5.5
150°-160°	387.5	4.4
160°-170°	249.7	2.8
170°-180°	85.9	1.0
0°-30°	1817.0	20.6
0°-40°	2914.9	33.0
0°-60°	4967.4	56.3
0°-90°	6181.2	70.0
90°-120°	435.1	4.9
90°-150°	1923.7	21.8
90°-180°	2647.0	30.0
0°-180°	8828.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2429	2429	2429	2429	2429	
5°	2429	2420	2394	2412	2408	231
15°	2312	2298	2268	2277	2266	651
25°	2093	2074	2034	2039	2034	963
35°	1805	1782	1745	1730	1719	1127
45°	1469	1453	1418	1392	1383	1134
55°	1112	1098	1070	1042	1030	994
65°	750	736	712	691	680	741
75°	392	388	376	362	367	419
85°	96	94	91	84	82	107
90°	1	8	13	16	18	8
95°	42	21	25	29	28	50
105°	199	218	40	47	50	212
115°	376	387	403	101	54	370
125°	531	540	552	557	559	474
135°	657	668	674	680	679	508
145°	762	762	773	777	774	477
155°	840	834	841	845	840	387
165°	884	881	883	887	883	250
175°	905	900	902	906	900	86
180°	903	903	903	903	903	



TEST NUMBER: P921711

CATALOG NUMBER: DFN2DIP-HX3F0-070D030US940-FLLONL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2428.8	2428.8	2428.8	2428.8	2428.8
2.5°	2442.9	2431.2	2405.5	2428.8	2424.3
5°	2428.8	2419.7	2393.9	2412.4	2408.0
7.5°	2412.4	2398.5	2372.8	2391.7	2386.9
10°	2386.9	2370.5	2342.5	2361.2	2354.2
12.5°	2351.7	2337.9	2309.9	2321.5	2316.8
15°	2312.1	2298.2	2267.7	2277.2	2265.5
17.5°	2263.0	2249.2	2218.7	2230.3	2218.7
20°	2209.2	2195.4	2162.7	2169.6	2160.4
22.5°	2155.7	2134.7	2104.2	2104.2	2099.4
25°	2092.6	2073.9	2034.3	2038.8	2034.3
27.5°	2022.4	2006.1	1975.9	1968.9	1957.2
30°	1952.6	1933.7	1898.8	1891.9	1882.4
32.5°	1877.7	1863.9	1826.4	1812.3	1802.9
35°	1805.4	1782.1	1744.6	1730.5	1718.9
37.5°	1723.6	1702.5	1665.1	1648.8	1637.1
40°	1639.6	1620.8	1583.3	1562.5	1553.1
42.5°	1557.8	1539.0	1501.8	1478.3	1464.4
45°	1469.1	1452.8	1417.6	1392.0	1382.6
47.5°	1382.6	1366.3	1328.8	1303.1	1289.2
50°	1291.5	1279.8	1247.1	1214.4	1202.7
52.5°	1202.7	1186.4	1156.2	1130.4	1114.0
55°	1111.8	1097.7	1069.7	1041.7	1030.0
57.5°	1020.7	1009.0	978.5	950.5	941.1
60°	929.4	920.2	887.6	861.8	854.9
62.5°	840.7	824.4	801.1	777.8	768.4
65°	749.8	735.7	712.4	691.3	679.7
67.5°	656.4	644.5	623.7	607.3	597.9
70°	569.9	560.5	539.4	523.1	513.9
72.5°	481.2	471.8	460.1	443.8	436.8
75°	392.3	387.8	375.9	362.0	366.8
77.5°	313.0	303.5	298.8	291.9	285.0
80°	233.6	231.2	226.5	219.5	214.8
82.5°	158.8	158.8	156.6	147.2	147.2
85°	95.7	93.5	91.2	84.0	81.8
87.5°	42.1	37.5	32.7	25.8	23.3
90°	0.6	7.8	13.0	16.4	17.6
92.5°	16.4	13.7	15.7	17.0	17.6
95°	42.4	20.9	25.4	28.8	28.1
97.5°	76.4	22.9	33.3	35.3	35.9
100°	115.7	26.1	37.3	42.4	43.8
102.5°	158.7	157.5	38.5	45.7	47.7
105°	198.6	218.2	39.9	47.0	49.7
107.5°	245.0	261.3	41.2	48.3	51.0
110°	289.4	303.1	114.3	49.0	51.6



TEST NUMBER: P921711

CATALOG NUMBER: DFN2DIP-HX3F0-070D030US940-FLLONL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	331.3	343.0	331.9	50.3	52.3
115°	375.6	386.7	403.1	100.6	53.6
117.5°	414.2	427.2	438.4	344.9	173.8
120°	457.3	467.1	478.8	486.7	398.5
122.5°	493.8	504.4	517.5	521.3	522.0
125°	531.1	539.6	552.1	556.6	558.6
127.5°	565.1	574.2	584.1	590.6	591.2
130°	597.1	607.6	614.7	621.9	621.3
132.5°	629.7	638.3	645.4	651.3	650.7
135°	657.2	667.7	673.5	680.1	678.8
137.5°	685.9	693.8	700.3	706.9	704.9
140°	714.0	719.3	726.4	732.3	729.1
142.5°	737.6	742.2	750.6	755.8	752.6
145°	762.4	761.7	772.8	777.4	774.1
147.5°	783.9	781.9	793.1	796.3	793.7
150°	804.9	800.3	810.7	814.6	811.4
152.5°	822.4	817.3	827.1	831.0	826.4
155°	839.5	833.7	841.4	845.3	840.2
157.5°	853.2	848.0	853.9	858.4	853.2
160°	865.0	861.0	865.0	868.9	864.2
162.5°	875.4	871.5	874.8	879.3	873.4
165°	884.5	880.7	882.6	887.2	882.6
167.5°	891.7	887.8	889.7	894.4	888.5
170°	897.6	893.7	895.0	899.6	893.7
172.5°	901.5	897.6	898.9	903.5	897.6
175°	904.7	900.2	901.5	906.1	899.6
177.5°	906.1	901.5	902.2	906.8	900.9
180°	902.9	902.9	902.9	902.9	902.9



TEST NUMBER: P921711
 CATALOG NUMBER: DFN2DIP-HX3F0-070D030US940-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	12.49	13.57	13.26	14.35	15.31	12.06	13.14	12.83	13.93	14.88
	3H	14.16	15.13	14.94	15.92	16.91	13.69	14.66	14.47	15.45	16.44
	4H	14.75	15.67	15.55	16.47	17.47	14.28	15.20	15.08	16.00	17.00
	6H	15.16	16.00	15.97	16.81	17.82	14.69	15.53	15.50	16.34	17.35
	8H	15.27	16.07	16.08	16.90	17.91	14.80	15.60	15.61	16.43	17.44
	12H	15.32	16.08	16.14	16.91	17.95	14.84	15.61	15.67	16.43	17.47
4H	2H	12.98	13.89	13.78	14.69	15.69	12.63	13.55	13.43	14.35	15.35
	3H	14.85	15.62	15.66	16.45	17.47	14.46	15.23	15.27	16.06	17.08
	4H	15.57	16.26	16.40	17.10	18.14	15.17	15.86	15.99	16.70	17.74
	6H	16.09	16.69	16.93	17.55	18.60	15.69	16.29	16.53	17.15	18.19
	8H	16.24	16.80	17.09	17.66	18.72	15.83	16.39	16.68	17.25	18.31
	12H	16.32	16.83	17.19	17.70	18.77	15.90	16.41	16.77	17.29	18.35
8H	4H	15.78	16.34	16.63	17.20	18.26	15.42	15.98	16.27	16.84	17.90
	6H	16.41	16.88	17.28	17.78	18.83	16.05	16.52	16.93	17.42	18.47
	8H	16.63	17.04	17.51	17.94	19.01	16.26	16.68	17.15	17.57	18.64
	12H	16.77	17.13	17.65	18.01	19.14	16.39	16.75	17.27	17.63	18.76
12H	4H	15.78	16.28	16.64	17.16	18.22	15.43	15.93	16.29	16.81	17.87
	6H	16.44	16.86	17.33	17.75	18.82	16.09	16.51	16.98	17.40	18.47
	8H	16.69	17.05	17.58	17.94	19.06	16.33	16.70	17.22	17.58	18.71