

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: P921767

Luminaire Tested: DFN2DIP-HX3F0-090D050US940-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P921767
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-HX3F0-090D050US940-FLLONL
Description: 3 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

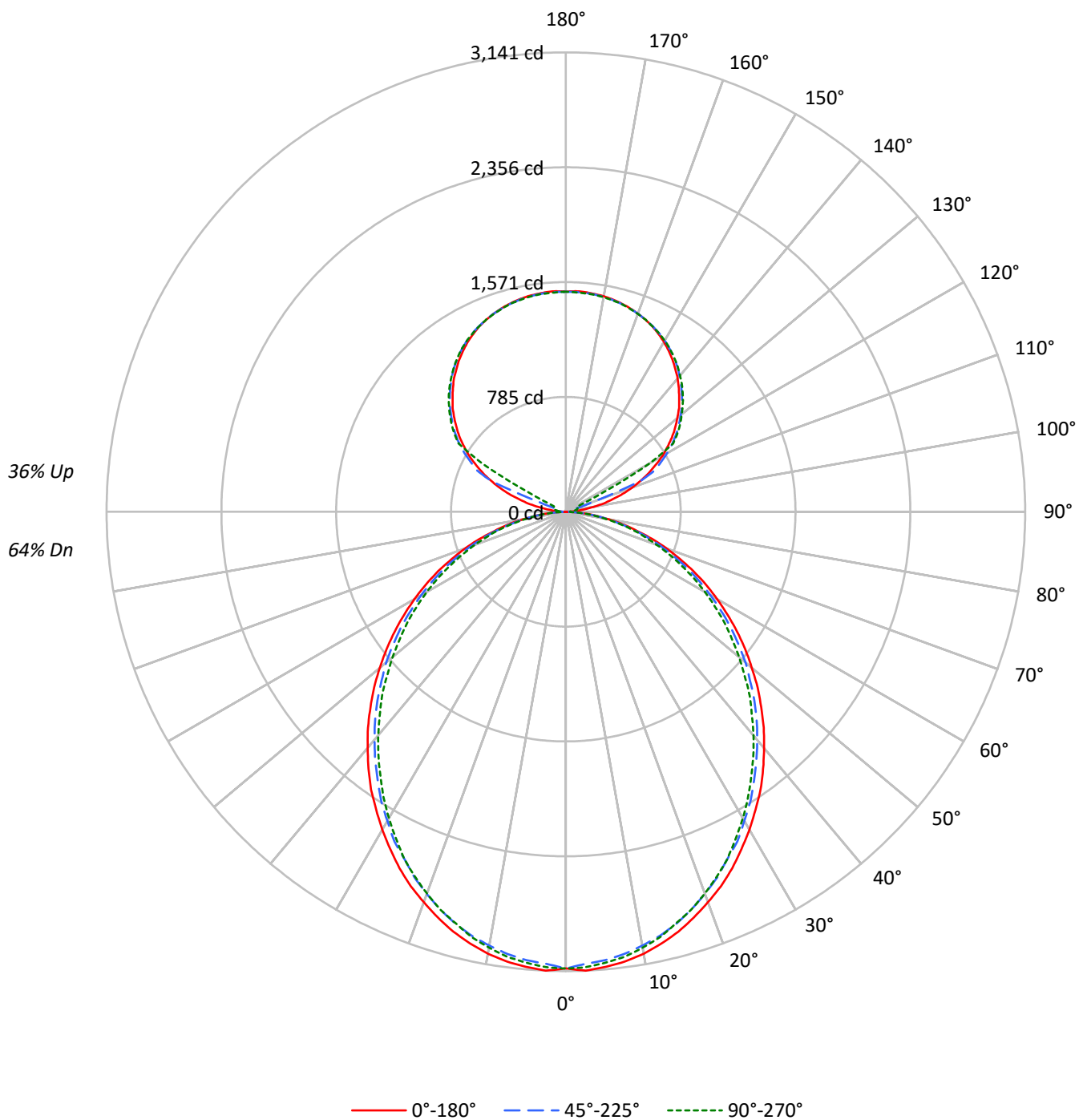
Lumens per Lamp: N/A
Luminaire Lumens: 12359.1 lumens
Efficiency: N/A
Efficacy: 95.6 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 2.84' x L: 3.28' x H: 0.1')
CIE Type: Semi-Direct

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: P921767

CATALOG NUMBER: DFN2DIP-HX3F0-090D050US940-FLLONL

Luminous Intensity Polar Plot



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COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20				20				20				20				20
RC	80				70				50				30				10
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10
RCR																	
0	111	111	111	111	104	104	104	104	91	91	91	80	80	80	69	69	69
1	101	97	93	89	95	91	87	84	80	78	75	70	68	67	61	60	59
2	92	84	78	73	86	79	74	69	70	66	62	62	59	56	54	51	49
3	84	74	67	61	79	70	63	58	62	57	52	55	51	47	48	45	42
4	77	66	58	51	72	62	55	49	55	49	45	49	44	40	43	39	36
5	71	59	50	44	66	55	48	42	49	43	39	44	39	35	39	35	32
6	65	53	44	38	61	50	42	37	45	38	34	40	35	31	35	31	28
7	60	48	40	34	57	45	38	33	41	34	30	36	31	27	32	28	25
8	56	43	35	30	53	41	34	29	37	31	27	33	28	24	29	25	22
9	52	40	32	27	49	38	31	26	34	28	24	30	26	22	27	23	20
10	49	37	29	24	46	35	28	23	31	26	22	28	23	20	25	21	18

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3617	3617	3617
5°	3621	3564	3589
10°	3590	3514	3538
15°	3536	3453	3460
20°	3463	3370	3381
25°	3390	3272	3289
30°	3300	3180	3173
35°	3214	3072	3050
40°	3108	2963	2933
45°	3002	2853	2813
50°	2887	2738	2674
55°	2766	2604	2546
60°	2629	2446	2400
65°	2480	2283	2227
70°	2289	2083	2040
75°	2027	1843	1865
80°	1708	1537	1536
85°	1212	1018	996

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
Vertical Angle: 45°
Luminance: 3002 cd/sqm

TEST NUMBER: P921767

CATALOG NUMBER: DFN2DIP-HX3F0-090D050US940-FLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	293.9	2.4
10°-20°	827.0	6.7
20°-30°	1215.3	9.8
30°-40°	1411.5	11.4
40°-50°	1409.7	11.4
50°-60°	1229.3	9.9
60°-70°	908.7	7.4
70°-80°	514.1	4.2
80°-90°	138.3	1.1
90°-100°	49.6	0.4
100°-110°	185.0	1.5
110°-120°	490.6	4.0
120°-130°	813.6	6.6
130°-140°	864.3	7.0
140°-150°	803.2	6.5
150°-160°	645.8	5.2
160°-170°	416.1	3.4
170°-180°	143.2	1.2
0°-30°	2336.2	18.9
0°-40°	3747.7	30.3
0°-60°	6386.7	51.7
0°-90°	7947.8	64.3
90°-120°	725.2	5.9
90°-150°	3206.2	25.9
90°-180°	4411.0	35.7
0°-180°	12359.1	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3123	3123	3123	3123	3123	
5°	3123	3111	3078	3102	3096	296
15°	2973	2955	2916	2928	2913	837
25°	2690	2666	2616	2621	2616	1238
35°	2321	2291	2243	2225	2210	1449
45°	1889	1868	1823	1790	1778	1458
55°	1430	1411	1375	1339	1324	1278
65°	964	946	916	889	874	953
75°	504	499	483	466	472	538
85°	123	120	117	108	105	137
90°	1	13	22	27	29	11
95°	71	35	42	48	47	84
105°	331	364	66	78	83	354
115°	626	644	672	168	89	616
125°	885	899	920	928	931	789
135°	1095	1113	1122	1134	1131	846
145°	1271	1270	1288	1296	1290	795
155°	1399	1389	1402	1409	1400	645
165°	1474	1468	1471	1478	1471	416
175°	1508	1500	1502	1510	1499	144
180°	1505	1505	1505	1505	1505	

TEST NUMBER: P921767

CATALOG NUMBER: DFN2DIP-HX3F0-090D050US940-FLLONL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3122.7	3122.7	3122.7	3122.7	3122.7
2.5°	3140.9	3125.9	3092.8	3122.7	3117.0
5°	3122.7	3110.9	3077.8	3101.7	3095.9
7.5°	3101.7	3083.9	3050.7	3075.0	3068.9
10°	3068.9	3047.9	3011.8	3035.7	3026.8
12.5°	3023.6	3005.8	2969.8	2984.7	2978.8
15°	2972.7	2954.9	2915.6	2927.8	2912.8
17.5°	2909.6	2891.7	2852.6	2867.6	2852.6
20°	2840.5	2822.6	2780.5	2789.4	2777.7
22.5°	2771.6	2744.6	2705.4	2705.4	2699.3
25°	2690.4	2666.5	2615.6	2621.3	2615.6
27.5°	2600.2	2579.2	2540.4	2531.5	2516.5
30°	2510.4	2486.2	2441.2	2432.3	2420.3
32.5°	2414.2	2396.4	2348.2	2330.1	2318.0
35°	2321.2	2291.2	2243.1	2225.0	2210.0
37.5°	2216.1	2189.0	2140.8	2119.9	2104.9
40°	2108.0	2083.8	2035.7	2008.9	1996.9
42.5°	2002.9	1978.7	1930.9	1900.7	1882.8
45°	1888.8	1867.9	1822.6	1789.8	1777.7
47.5°	1777.7	1756.7	1708.5	1675.4	1657.6
50°	1660.5	1645.5	1603.4	1561.4	1546.4
52.5°	1546.4	1525.4	1486.5	1453.4	1432.4
55°	1429.5	1411.3	1375.3	1339.3	1324.4
57.5°	1312.2	1297.3	1258.1	1222.1	1210.0
60°	1195.0	1183.2	1141.1	1108.0	1099.1
62.5°	1080.9	1059.9	1029.9	1000.1	987.9
65°	964.0	945.8	915.9	888.9	873.9
67.5°	843.9	828.7	801.8	780.9	768.7
70°	732.7	720.6	693.6	672.5	660.8
72.5°	618.7	606.5	591.6	570.6	561.7
75°	504.4	498.6	483.3	465.5	471.5
77.5°	402.3	390.3	384.2	375.3	366.4
80°	300.4	297.2	291.1	282.2	276.3
82.5°	204.2	204.2	201.3	189.2	189.2
85°	123.0	120.1	117.3	108.0	105.1
87.5°	54.1	48.1	42.1	33.2	30.0
90°	1.1	13.0	21.8	27.3	29.3
92.5°	27.3	22.9	26.1	28.4	29.3
95°	70.7	34.8	42.4	48.0	46.8
97.5°	127.3	38.2	55.5	58.9	59.8
100°	192.8	43.6	62.1	70.7	72.9
102.5°	264.6	262.4	64.3	76.2	79.5
105°	331.0	363.7	66.4	78.4	82.8
107.5°	408.3	435.4	68.7	80.5	85.0
110°	482.4	505.2	190.6	81.7	86.0

TEST NUMBER: P921767

CATALOG NUMBER: DFN2DIP-HX3F0-090D050US940-FLLONL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	552.1	571.6	553.1	83.8	87.1
115°	626.1	644.5	671.8	167.7	89.3
117.5°	690.3	712.0	730.7	574.8	289.6
120°	762.1	778.5	798.1	811.2	664.1
122.5°	823.0	840.5	862.4	868.9	870.0
125°	885.1	899.4	920.1	927.6	930.9
127.5°	941.7	957.0	973.5	984.3	985.3
130°	995.1	1012.6	1024.5	1036.5	1035.5
132.5°	1049.6	1063.8	1075.7	1085.6	1084.5
135°	1095.4	1112.9	1122.5	1133.5	1131.3
137.5°	1143.2	1156.3	1167.2	1178.1	1174.9
140°	1190.0	1198.8	1210.7	1220.5	1215.1
142.5°	1229.3	1237.0	1251.1	1259.7	1254.3
145°	1270.7	1269.5	1288.0	1295.7	1290.2
147.5°	1306.5	1303.2	1321.8	1327.2	1322.9
150°	1341.4	1333.8	1351.2	1357.7	1352.3
152.5°	1370.7	1362.1	1378.4	1385.0	1377.3
155°	1399.1	1389.4	1402.4	1408.9	1400.3
157.5°	1421.9	1413.3	1423.1	1430.7	1421.9
160°	1441.6	1435.0	1441.6	1448.0	1440.5
162.5°	1458.9	1452.5	1457.9	1465.5	1455.7
165°	1474.2	1467.8	1471.0	1478.5	1471.0
167.5°	1486.2	1479.6	1483.0	1490.6	1480.8
170°	1496.0	1489.4	1491.7	1499.2	1489.4
172.5°	1502.5	1496.0	1498.3	1505.8	1496.0
175°	1508.0	1500.3	1502.5	1510.1	1499.2
177.5°	1510.1	1502.5	1503.7	1511.3	1501.5
180°	1504.7	1504.7	1504.7	1504.7	1504.7

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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	12.92	13.93	13.74	14.77	15.82	12.49	13.50	13.32	14.34	15.40
	3H	14.58	15.49	15.42	16.34	17.42	14.11	15.02	14.95	15.87	16.95
	4H	15.17	16.03	16.03	16.89	17.98	14.70	15.56	15.56	16.42	17.51
	6H	15.57	16.36	16.44	17.23	18.33	15.10	15.89	15.97	16.76	17.86
	8H	15.68	16.43	16.55	17.32	18.42	15.21	15.96	16.08	16.85	17.95
	12H	15.73	16.44	16.61	17.33	18.46	15.26	15.97	16.14	16.85	17.98
4H	2H	13.40	14.25	14.25	15.11	16.20	13.05	13.91	13.91	14.77	15.86
	3H	15.27	15.98	16.14	16.87	17.98	14.88	15.59	15.75	16.48	17.59
	4H	15.98	16.63	16.86	17.52	18.65	15.58	16.23	16.46	17.12	18.25
	6H	16.50	17.06	17.39	17.97	19.11	16.09	16.65	16.99	17.57	18.70
	8H	16.65	17.17	17.55	18.08	19.23	16.24	16.76	17.14	17.67	18.82
	12H	16.72	17.20	17.64	18.12	19.28	16.31	16.78	17.23	17.71	18.86
8H	4H	16.19	16.71	17.09	17.62	18.77	15.83	16.35	16.73	17.26	18.41
	6H	16.81	17.25	17.74	18.20	19.35	16.45	16.89	17.38	17.84	18.99
	8H	17.03	17.42	17.97	18.36	19.52	16.67	17.05	17.60	18.00	19.16
	12H	17.16	17.50	18.10	18.44	19.65	16.78	17.12	17.72	18.06	19.27
12H	4H	16.18	16.65	17.10	17.58	18.73	15.83	16.30	16.75	17.23	18.38
	6H	16.84	17.23	17.78	18.17	19.34	16.50	16.88	17.43	17.82	18.99
	8H	17.09	17.43	18.03	18.36	19.58	16.73	17.07	17.67	18.01	19.22