

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: P916382

Luminaire Tested: DFN2DIP-HX4F0-070D050US930-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P916382
REPORT IS A COMBINATION OF REPORTS P899323 AND P896188
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-070D050US930-FLLFLL
Description: 4 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

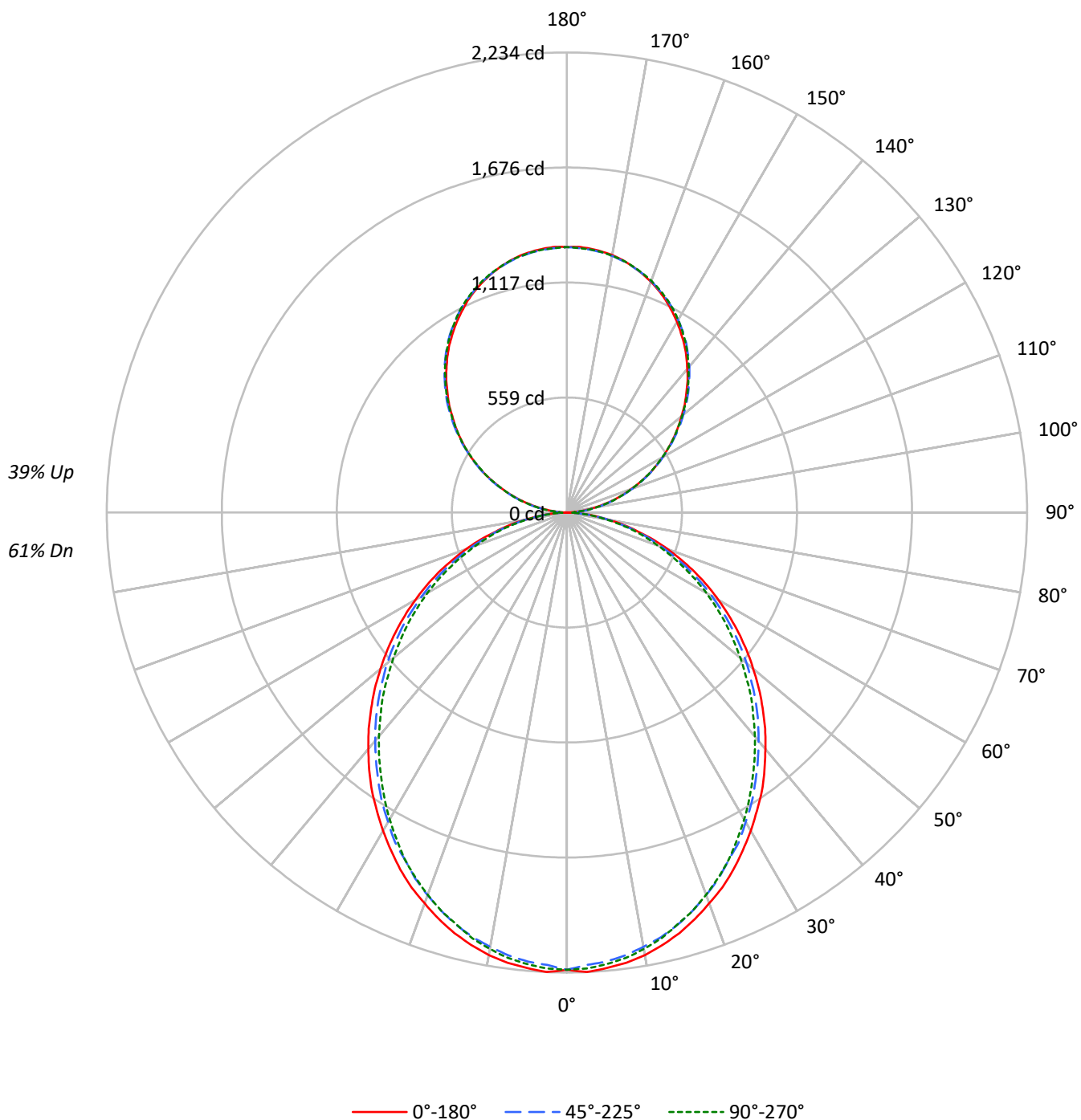
Lumens per Lamp: N/A
Luminaire Lumens: 9257.7 lumens
Efficiency: N/A
Efficacy: 97.6 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 94.9
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9972
Total Harmonic Distortion (THDi): 0.128
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P916382

CATALOG NUMBER: DFN2DIP-HX4F0-070D050US930-FLLFLL

Luminous Intensity Polar Plot



TEST NUMBER: P916382

CATALOG NUMBER: DFN2DIP-HX4F0-070D050US930-FLLFL

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	110	110	110	110	103	103	103	103	89	89	89	77	77	77	66	66	66
1	100	96	92	88	94	90	86	83	79	76	74	68	66	65	59	57	56
2	91	84	77	72	85	79	73	68	69	65	61	60	57	54	52	49	47
3	83	74	66	60	78	69	63	57	61	56	51	53	49	46	46	43	40
4	76	65	57	51	71	61	54	49	54	48	44	47	43	39	41	37	35
5	70	58	50	44	65	55	47	42	48	42	38	42	38	34	37	33	30
6	65	52	44	38	60	49	42	36	44	38	33	38	34	30	33	30	27
7	60	47	39	33	56	45	37	32	40	34	29	35	30	26	31	27	24
8	56	43	35	30	52	41	33	28	36	30	26	32	27	24	28	24	21
9	52	39	32	27	48	37	30	25	33	27	23	30	25	21	26	22	19
10	48	36	29	24	45	34	28	23	31	25	21	27	23	19	24	20	17

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1651	1651	1651
5°	1654	1628	1639
10°	1641	1607	1617
15°	1617	1580	1582
20°	1584	1544	1547
25°	1552	1500	1506
30°	1512	1459	1454
35°	1473	1411	1399
40°	1426	1363	1346
45°	1379	1314	1293
50°	1327	1263	1231
55°	1273	1204	1174
60°	1212	1134	1108
65°	1146	1061	1031
70°	1062	973	948
75°	944	867	871
80°	803	732	725
85°	583	499	482

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 1379 cd/sqm

TEST NUMBER: P916382

CATALOG NUMBER: DFN2DIP-HX4F0-070D050US930-FLLFLL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	209.0	2.3
10°-20°	588.1	6.4
20°-30°	864.2	9.3
30°-40°	1003.7	10.8
40°-50°	1002.5	10.8
50°-60°	874.2	9.4
60°-70°	646.2	7.0
70°-80°	365.6	3.9
80°-90°	100.2	1.1
90°-100°	79.8	0.9
100°-110°	253.5	2.7
110°-120°	433.8	4.7
120°-130°	570.5	6.2
130°-140°	640.4	6.9
140°-150°	627.9	6.8
150°-160°	526.8	5.7
160°-170°	349.3	3.8
170°-180°	122.1	1.3
0°-30°	1661.3	17.9
0°-40°	2665.1	28.8
0°-60°	4541.7	49.1
0°-90°	5653.7	61.1
90°-120°	767.0	8.3
90°-150°	2605.8	28.1
90°-180°	3604.0	38.9
0°-180°	9257.7	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2221	2221	2221	2221	2221	
5°	2221	2212	2189	2206	2202	211
15°	2114	2101	2073	2082	2071	595
25°	1913	1896	1860	1864	1860	880
35°	1651	1629	1595	1582	1572	1031
45°	1343	1328	1296	1273	1264	1037
55°	1016	1004	978	952	942	909
65°	686	673	651	632	621	678
75°	359	355	344	331	335	383
85°	88	85	83	77	75	98
90°	1	14	38	36	37	9
95°	57	68	70	70	68	63
105°	234	237	240	241	241	247
115°	435	442	440	438	435	431
125°	633	643	640	636	635	566
135°	819	831	833	832	829	633
145°	994	1002	1008	1009	1005	621
155°	1137	1140	1144	1149	1145	523
165°	1237	1236	1236	1243	1238	349
175°	1287	1284	1282	1289	1283	122
180°	1289	1289	1289	1289	1289	

TEST NUMBER: P916382

CATALOG NUMBER: DFN2DIP-HX4F0-070D050US930-FLLFLL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2220.6	2220.6	2220.6	2220.6	2220.6
2.5°	2233.6	2222.9	2199.3	2220.6	2216.6
5°	2220.6	2212.3	2188.7	2205.7	2201.6
7.5°	2205.7	2193.0	2169.4	2186.7	2182.4
10°	2182.4	2167.4	2141.8	2158.8	2152.5
12.5°	2150.2	2137.5	2111.9	2122.5	2118.2
15°	2114.0	2101.3	2073.4	2082.0	2071.3
17.5°	2069.1	2056.4	2028.5	2039.2	2028.5
20°	2019.9	2007.3	1977.3	1983.7	1975.3
22.5°	1971.0	1951.7	1923.9	1923.9	1919.5
25°	1913.3	1896.2	1860.0	1864.1	1860.0
27.5°	1849.1	1834.2	1806.5	1800.2	1789.5
30°	1785.3	1768.0	1736.1	1729.7	1721.1
32.5°	1716.8	1704.1	1669.9	1657.0	1648.4
35°	1650.7	1629.4	1595.1	1582.2	1571.6
37.5°	1575.9	1556.6	1522.4	1507.5	1496.8
40°	1499.1	1481.9	1447.6	1428.6	1420.0
42.5°	1424.3	1407.1	1373.1	1351.6	1338.9
45°	1343.2	1328.3	1296.1	1272.8	1264.1
47.5°	1264.1	1249.2	1215.0	1191.4	1178.8
50°	1180.8	1170.1	1140.2	1110.4	1099.7
52.5°	1099.7	1084.8	1057.1	1033.6	1018.6
55°	1016.5	1003.6	978.0	952.4	941.8
57.5°	933.2	922.5	894.6	869.0	860.5
60°	849.8	841.4	811.5	788.0	781.6
62.5°	768.7	753.7	732.5	711.2	702.5
65°	685.6	672.6	651.3	632.1	621.4
67.5°	600.1	589.3	570.2	555.3	546.7
70°	521.1	512.5	493.2	478.3	469.9
72.5°	439.9	431.4	420.7	405.8	399.4
75°	358.6	354.6	343.6	331.0	335.3
77.5°	286.2	277.5	273.2	266.8	260.6
80°	213.6	211.4	207.1	200.7	196.4
82.5°	145.2	145.2	143.2	134.6	134.6
85°	87.5	85.4	83.4	76.8	74.8
87.5°	38.5	34.2	29.9	23.6	21.3
90°	1.1	14.0	38.1	35.8	36.9
92.5°	24.1	32.6	33.8	35.0	35.0
95°	56.7	67.7	69.5	69.5	67.7
97.5°	94.4	104.5	108.8	108.8	108.8
100°	137.9	146.9	150.0	150.0	148.9
102.5°	183.8	190.5	194.7	195.9	194.7
105°	234.0	237.1	239.5	241.3	241.3
107.5°	283.7	288.4	288.4	289.2	283.7
110°	331.9	338.2	338.2	338.2	335.0

TEST NUMBER: P916382

CATALOG NUMBER: DFN2DIP-HX4F0-070D050US930-FLLFLL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	384.0	390.6	389.5	386.4	384.0
115°	435.3	441.6	439.6	438.5	435.3
117.5°	486.2	494.8	489.3	486.2	483.1
120°	537.5	546.1	537.5	537.5	534.0
122.5°	584.2	595.1	589.6	586.5	584.2
125°	633.2	642.9	639.8	636.3	635.1
127.5°	680.9	693.0	688.8	684.0	680.9
130°	725.7	739.6	737.7	735.4	731.1
132.5°	775.8	786.7	787.5	782.0	778.9
135°	819.0	831.0	833.3	832.2	829.1
137.5°	867.2	876.9	878.8	878.0	873.3
140°	909.5	919.2	924.6	924.6	920.4
142.5°	953.0	962.8	965.9	967.0	962.8
145°	994.3	1002.0	1008.2	1009.4	1005.1
147.5°	1031.2	1040.9	1045.5	1047.5	1043.2
150°	1069.3	1075.9	1080.1	1083.6	1080.1
152.5°	1103.1	1109.7	1115.1	1119.4	1115.1
155°	1136.9	1140.0	1143.5	1148.9	1145.4
157.5°	1166.0	1168.3	1170.3	1178.1	1172.6
160°	1192.0	1194.4	1195.6	1202.2	1197.5
162.5°	1216.2	1216.2	1217.3	1224.7	1219.3
165°	1236.8	1235.6	1235.6	1243.4	1237.9
167.5°	1255.4	1251.9	1251.9	1259.7	1254.3
170°	1269.4	1266.3	1265.2	1272.9	1266.3
172.5°	1279.1	1276.0	1274.9	1282.6	1276.0
175°	1286.9	1283.8	1281.5	1289.2	1282.6
177.5°	1291.2	1288.1	1285.7	1292.3	1285.7
180°	1289.2	1289.2	1289.2	1289.2	1289.2

TEST NUMBER: P916382

CATALOG NUMBER: DFN2DIP-HX4F0-070D050US930-FLLFLL

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	9.98	10.95	10.83	11.83	12.93	9.55	10.52	10.40	11.39	12.50
	3H	11.65	12.52	12.51	13.40	14.54	11.17	12.04	12.04	12.93	14.06
	4H	12.24	13.06	13.12	13.96	15.10	11.77	12.59	12.65	13.48	14.62
	6H	12.65	13.41	13.54	14.31	15.46	12.17	12.93	13.07	13.83	14.98
	8H	12.75	13.48	13.66	14.40	15.55	12.28	13.00	13.18	13.92	15.07
	12H	12.81	13.50	13.72	14.41	15.59	12.33	13.01	13.24	13.93	15.10
4H	2H	10.45	11.28	11.34	12.17	13.31	10.11	10.93	11.00	11.82	12.96
	3H	12.33	13.02	13.23	13.94	15.10	11.94	12.62	12.84	13.55	14.70
	4H	13.05	13.68	13.96	14.60	15.78	12.64	13.27	13.55	14.19	15.37
	6H	13.57	14.11	14.50	15.06	16.24	13.16	13.70	14.09	14.65	15.83
	8H	13.72	14.23	14.65	15.17	16.37	13.31	13.82	14.24	14.76	15.95
	12H	13.80	14.26	14.75	15.22	16.42	13.38	13.84	14.33	14.79	16.00
8H	4H	13.26	13.76	14.18	14.70	15.90	12.89	13.40	13.82	14.34	15.54
	6H	13.89	14.31	14.85	15.29	16.49	13.53	13.95	14.48	14.93	16.12
	8H	14.11	14.49	15.08	15.46	16.67	13.75	14.12	14.71	15.09	16.30
	12H	14.25	14.58	15.22	15.54	16.80	13.87	14.19	14.84	15.16	16.42
12H	4H	13.25	13.70	14.19	14.66	15.86	12.89	13.35	13.84	14.31	15.51
	6H	13.92	14.29	14.89	15.27	16.48	13.57	13.94	14.54	14.91	16.13
	8H	14.17	14.50	15.14	15.46	16.72	13.81	14.14	14.78	15.10	16.37