

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: P919077

Luminaire Tested: DFN2DIP-HX4F0-050D060US935-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P919077
REPORT IS A COMBINATION OF REPORTS P899338 AND P896188
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-050D060US935-RLLFLL
Description: 4 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

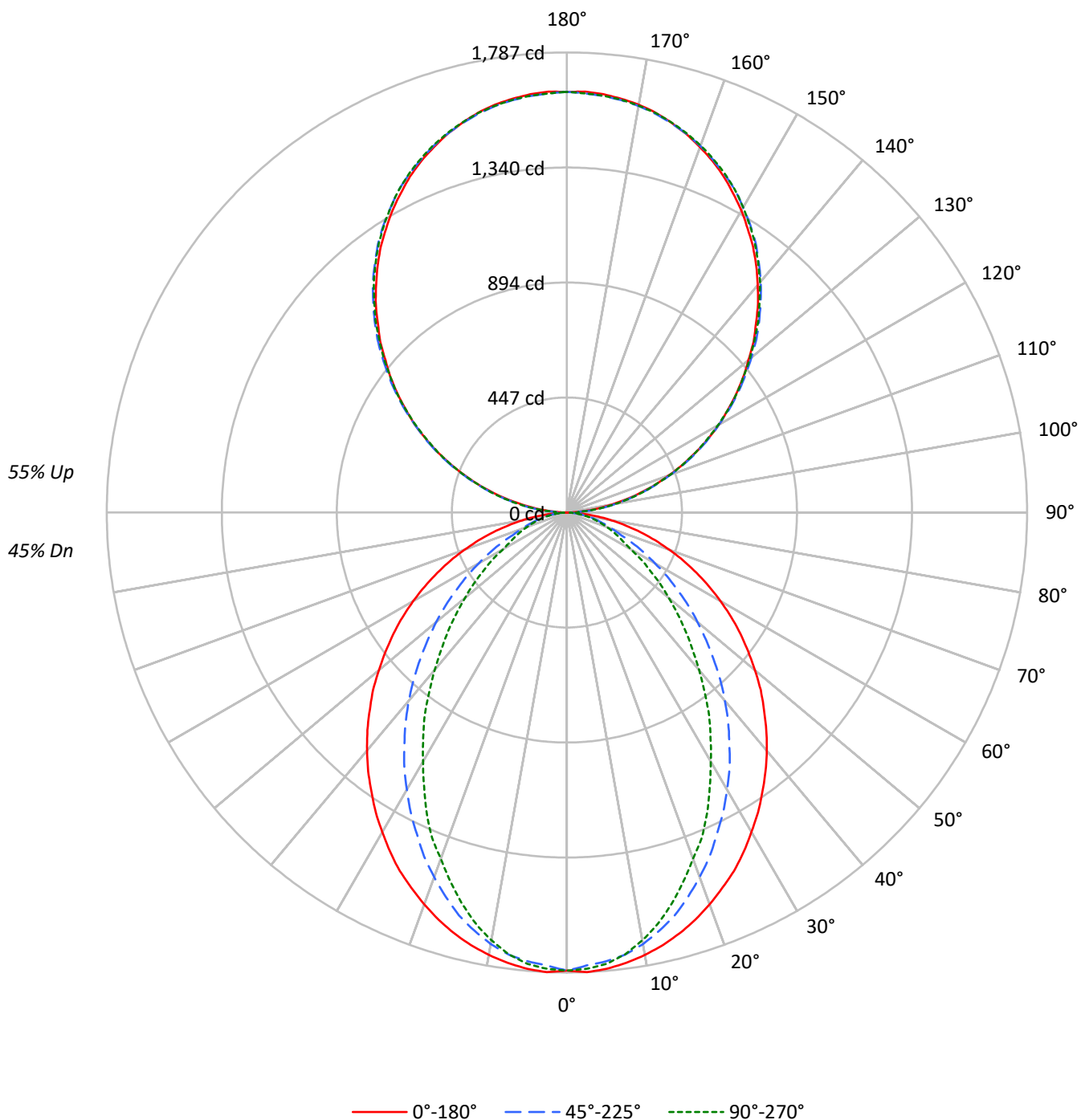
Lumens per Lamp: N/A
Luminaire Lumens: 8231.2 lumens
Efficiency: N/A
Efficacy: 105.9 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 77.7
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9957
Total Harmonic Distortion (THDi): 0.049
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P919077

CATALOG NUMBER: DFN2DIP-HX4F0-050D060US935-RLLFLL

Luminous Intensity Polar Plot



TEST NUMBER: P919077

CATALOG NUMBER: DFN2DIP-HX4F0-050D060US935-RLFL

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	106	106	106	106	97	97	97	97	80	80	80	65	65	65	51	51	51
1	97	93	89	86	89	85	82	79	71	69	67	58	56	55	46	45	44
2	89	82	76	71	81	75	70	66	63	59	56	51	49	47	41	39	38
3	81	72	65	59	74	66	60	55	56	51	47	46	43	40	37	34	33
4	74	64	56	51	68	59	52	47	50	45	41	41	37	35	33	30	28
5	68	57	49	44	63	53	46	41	45	39	35	37	33	30	30	27	25
6	63	51	44	38	58	48	41	36	40	35	31	34	30	27	27	24	22
7	58	47	39	33	54	43	36	31	37	31	28	31	27	24	25	22	20
8	54	42	35	30	50	39	33	28	34	28	25	28	24	21	23	20	18
9	51	39	31	27	46	36	29	25	31	26	22	26	22	19	21	18	16
10	47	36	29	24	43	33	27	23	28	23	20	24	20	17	20	17	15

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1323	1323	1323
5°	1325	1302	1310
10°	1312	1277	1268
15°	1294	1235	1202
20°	1270	1177	1121
25°	1246	1111	1043
30°	1213	1045	944
35°	1181	973	857
40°	1149	899	757
45°	1111	816	667
50°	1072	733	578
55°	1031	644	494
60°	983	551	406
65°	929	457	366
70°	863	368	331
75°	780	325	301
80°	660	273	262
85°	461	183	197

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 1232 cd/sqm

TEST NUMBER: P919077

CATALOG NUMBER: DFN2DIP-HX4F0-050D060US935-RLFL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	166.8	2.0
10°-20°	457.8	5.6
20°-30°	642.7	7.8
30°-40°	700.6	8.5
40°-50°	643.9	7.8
50°-60°	505.7	6.1
60°-70°	329.2	4.0
70°-80°	169.5	2.1
80°-90°	47.9	0.6
90°-100°	101.1	1.2
100°-110°	321.2	3.9
110°-120°	549.7	6.7
120°-130°	723.0	8.8
130°-140°	811.5	9.9
140°-150°	795.8	9.7
150°-160°	667.5	8.1
160°-170°	442.7	5.4
170°-180°	154.7	1.9
0°-30°	1267.2	15.4
0°-40°	1967.8	23.9
0°-60°	3117.4	37.9
0°-90°	3663.9	44.5
90°-120°	972.0	11.8
90°-150°	3302.3	40.1
90°-180°	4567.0	55.5
0°-180°	8231.2	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1779	1779	1779	1779	1779	
5°	1779	1771	1750	1765	1760	169
15°	1692	1675	1620	1589	1573	477
25°	1536	1484	1378	1312	1288	706
35°	1324	1242	1100	998	963	828
45°	1082	974	805	691	652	836
55°	823	697	523	427	396	735
65°	556	425	280	226	221	551
75°	296	184	129	118	116	313
85°	69	35	31	31	31	79
90°	2	18	48	45	47	8
95°	72	86	88	88	86	80
105°	296	300	303	306	306	313
115°	552	560	557	556	552	546
125°	802	815	811	806	805	717
135°	1038	1053	1056	1055	1051	802
145°	1260	1270	1278	1279	1274	787
155°	1441	1445	1449	1456	1452	663
165°	1567	1566	1566	1576	1569	442
175°	1631	1627	1624	1634	1625	155
180°	1634	1634	1634	1634	1634	

TEST NUMBER: P919077

CATALOG NUMBER: DFN2DIP-HX4F0-050D060US935-RLFL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1779.3	1779.3	1779.3	1779.3	1779.3
2.5°	1787.3	1779.3	1761.5	1777.7	1774.4
5°	1779.3	1771.2	1750.2	1764.7	1760.0
7.5°	1764.7	1755.1	1732.6	1739.0	1730.9
10°	1745.4	1734.1	1702.0	1697.1	1687.5
12.5°	1721.3	1706.8	1663.3	1653.7	1635.9
15°	1692.3	1674.6	1619.9	1589.3	1573.2
17.5°	1658.5	1632.7	1565.0	1529.6	1503.8
20°	1619.9	1587.6	1507.1	1467.0	1431.4
22.5°	1578.0	1540.9	1447.5	1392.8	1368.7
25°	1536.1	1484.5	1378.3	1312.3	1288.1
27.5°	1486.3	1431.4	1313.9	1238.2	1201.2
30°	1433.1	1371.8	1243.0	1161.0	1117.4
32.5°	1381.6	1307.4	1175.5	1078.8	1038.5
35°	1323.6	1241.5	1099.8	998.3	962.9
37.5°	1267.2	1178.6	1029.0	917.7	877.6
40°	1207.6	1111.1	954.8	840.5	798.7
42.5°	1146.5	1043.4	880.8	761.6	721.4
45°	1082.1	974.1	805.1	690.7	652.0
47.5°	1020.9	906.6	732.7	618.3	582.9
50°	953.3	839.0	661.8	550.6	516.9
52.5°	887.2	766.4	594.2	487.9	457.4
55°	822.8	697.1	523.2	426.7	396.1
57.5°	756.8	628.0	460.5	370.4	344.6
60°	689.1	560.3	394.4	312.5	286.6
62.5°	623.2	494.4	338.1	260.9	248.1
65°	555.5	425.1	280.2	225.5	220.6
67.5°	491.1	360.7	225.5	198.0	193.2
70°	423.5	297.9	186.8	170.6	164.2
72.5°	359.1	239.9	156.2	143.4	140.1
75°	296.3	183.5	128.8	117.5	116.0
77.5°	233.5	130.4	101.5	95.0	91.7
80°	175.5	93.4	77.2	70.9	70.9
82.5°	122.3	62.9	53.1	49.9	49.9
85°	69.2	35.4	30.6	30.6	30.6
87.5°	25.8	12.8	12.8	11.3	11.3
90°	1.5	17.7	48.3	45.3	46.8
92.5°	30.6	41.4	42.9	44.3	44.3
95°	71.9	85.7	88.2	88.2	85.7
97.5°	119.7	132.5	137.9	137.9	137.9
100°	174.9	186.1	190.1	190.1	188.6
102.5°	233.0	241.3	246.8	248.2	246.8
105°	296.5	300.5	303.4	305.9	305.9
107.5°	359.6	365.5	365.5	366.4	359.6
110°	420.7	428.5	428.5	428.5	424.6

TEST NUMBER: P919077

CATALOG NUMBER: DFN2DIP-HX4F0-050D060US935-RLFL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	486.6	495.0	493.5	489.6	486.6
115°	551.6	559.6	557.1	555.6	551.6
117.5°	616.2	627.1	620.1	616.2	612.3
120°	681.2	692.1	681.2	681.2	676.7
122.5°	740.3	754.1	747.2	743.3	740.3
125°	802.4	814.7	810.7	806.3	804.9
127.5°	863.0	878.2	872.8	866.9	863.0
130°	919.6	937.4	934.9	931.9	926.5
132.5°	983.2	996.9	997.9	991.0	987.0
135°	1037.8	1053.1	1056.0	1054.6	1050.6
137.5°	1098.9	1111.2	1113.7	1112.7	1106.8
140°	1152.6	1164.9	1171.8	1171.8	1166.4
142.5°	1207.7	1220.0	1224.0	1225.5	1220.0
145°	1260.0	1269.8	1277.7	1279.2	1273.8
147.5°	1306.7	1319.0	1325.0	1327.4	1322.0
150°	1355.0	1363.4	1368.8	1373.2	1368.8
152.5°	1397.8	1406.3	1413.2	1418.6	1413.2
155°	1440.7	1444.7	1449.1	1456.0	1451.6
157.5°	1477.6	1480.7	1483.1	1493.0	1486.1
160°	1510.7	1513.6	1515.1	1523.4	1517.6
162.5°	1541.2	1541.2	1542.6	1552.0	1545.1
165°	1567.3	1565.8	1565.8	1575.7	1568.8
167.5°	1591.0	1586.6	1586.6	1596.4	1589.5
170°	1608.7	1604.7	1603.3	1613.1	1604.7
172.5°	1621.0	1617.0	1615.6	1625.4	1617.0
175°	1630.8	1626.9	1623.9	1633.8	1625.4
177.5°	1636.2	1632.4	1629.4	1637.7	1629.4
180°	1633.8	1633.8	1633.8	1633.8	1633.8

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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	7.58	8.37	8.59	9.39	10.74	3.56	4.34	4.57	5.36	6.71
	3H	9.26	9.96	10.28	10.99	12.36	4.74	5.45	5.76	6.47	7.84
	4H	9.87	10.53	10.90	11.56	12.94	5.19	5.86	6.23	6.89	8.26
	6H	10.29	10.90	11.33	11.93	13.32	5.51	6.13	6.56	7.16	8.55
	8H	10.41	10.99	11.46	12.04	13.43	5.60	6.19	6.65	7.23	8.62
	12H	10.47	11.03	11.52	12.07	13.48	5.65	6.20	6.70	7.24	8.65
4H	2H	7.60	8.26	8.64	9.29	10.67	4.15	4.81	5.19	5.84	7.22
	3H	9.42	9.98	10.47	11.03	12.42	5.50	6.05	6.54	7.10	8.50
	4H	10.11	10.62	11.17	11.67	13.08	6.04	6.55	7.10	7.60	9.01
	6H	10.63	11.06	11.69	12.13	13.54	6.46	6.90	7.52	7.97	9.38
	8H	10.80	11.21	11.87	12.27	13.70	6.59	7.00	7.65	8.06	9.48
	12H	10.90	11.26	11.98	12.34	13.77	6.66	7.02	7.74	8.10	9.53
8H	4H	10.08	10.49	11.14	11.55	12.97	6.32	6.73	7.38	7.79	9.21
	6H	10.65	10.98	11.73	12.08	13.51	6.84	7.18	7.93	8.28	9.70
	8H	10.86	11.16	11.96	12.24	13.68	7.03	7.33	8.13	8.41	9.85
	12H	11.00	11.26	12.10	12.34	13.82	7.15	7.41	8.25	8.49	9.97
12H	4H	10.03	10.40	11.11	11.47	12.90	6.32	6.69	7.40	7.77	9.20
	6H	10.62	10.92	11.71	12.00	13.44	6.89	7.18	7.98	8.27	9.71
	8H	10.84	11.10	11.94	12.18	13.66	7.10	7.36	8.20	8.44	9.92