

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: P905437

Luminaire Tested: DFN2DIP-HX4F0-050D060US835-RLLFLL

Issue Date: 11/21/2024

**Test Information**

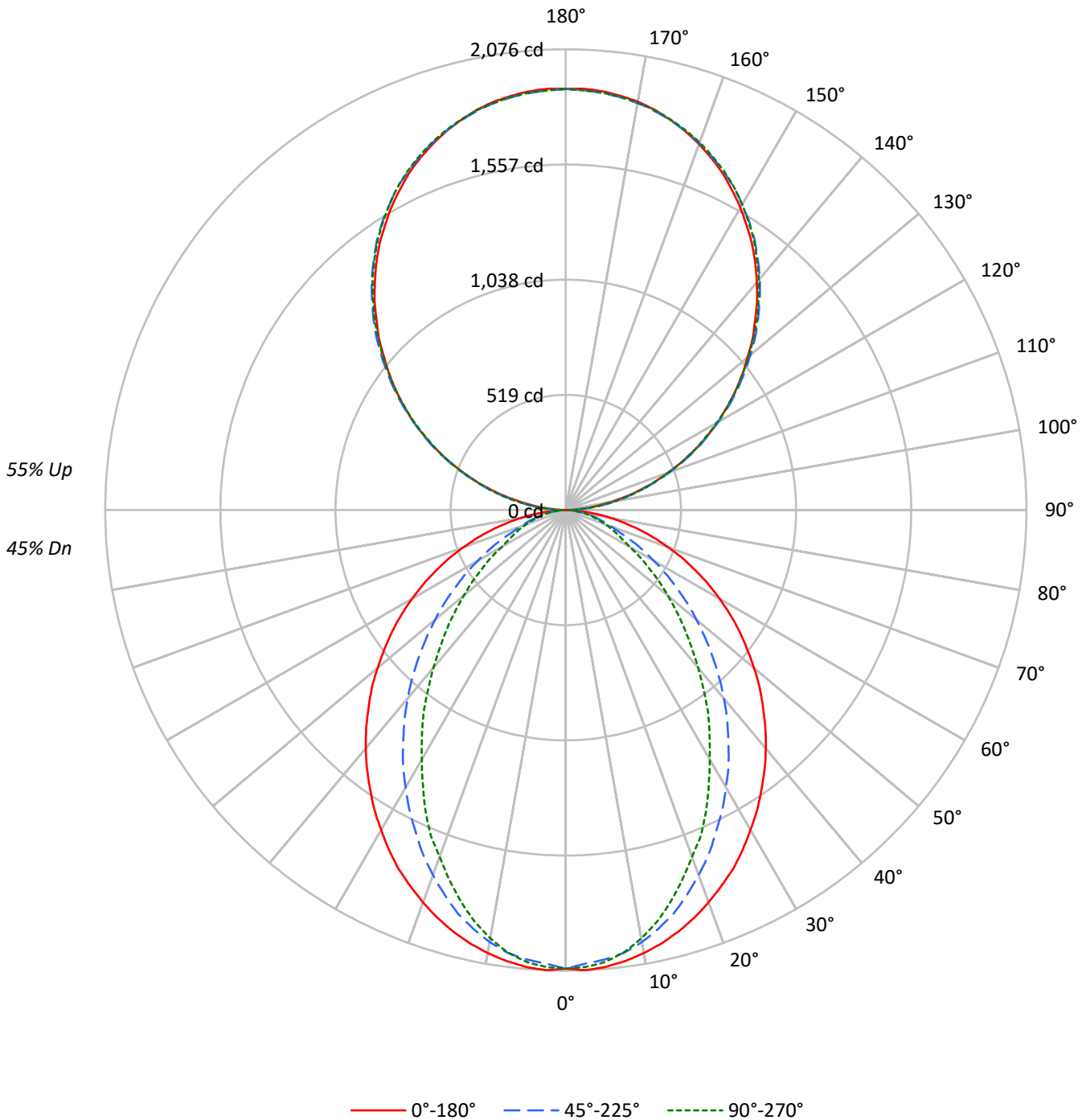
Test Method: LM-79-2019  
Report Number: P905437  
REPORT IS A COMBINATION OF REPORTS P899338 AND P896188  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-HX4F0-050D060US835-RLLFLL  
Description: 4 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 9560.0 lumens  
Efficiency: N/A  
Efficacy: 123.0 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: P905437  
CATALOG NUMBER: DFN2DIP-HX4F0-050D060US835-RLFL

### Luminous Intensity Polar Plot





TEST NUMBER: P905437  
 CATALOG NUMBER: DFN2DIP-HX4F0-050D060US835-RLLFLL

**COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:**

RF	20					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	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	45	45	45	38	38	38	33	33	33				
1	97	93	89	86	89	85	82	79	71	69	67	58	56	55	46	45	44	38	38	38	33	33	33	28	28	28				
2	89	82	76	71	81	75	70	66	63	59	56	51	49	47	41	39	38	33	33	33	28	28	28	25	25	25				
3	81	72	65	59	74	66	60	55	56	51	47	46	43	40	37	34	33	28	28	28	25	25	25	22	22	22				
4	74	64	56	51	68	59	52	47	50	45	41	41	37	35	33	30	28	25	25	25	22	22	22	19	19	19				
5	68	57	49	44	63	53	46	41	45	39	35	37	33	30	30	27	25	22	22	22	19	19	19	17	17	17				
6	63	51	44	38	58	48	41	36	40	35	31	34	30	27	27	24	22	19	19	19	17	17	17	16	16	16				
7	58	47	39	33	54	43	36	31	37	31	28	31	27	24	25	22	20	17	17	17	16	16	16	14	14	14				
8	54	42	35	30	50	39	33	28	34	28	25	28	24	21	23	20	18	16	16	16	14	14	14	13	13	13				
9	51	39	31	27	46	36	29	25	31	26	22	26	22	19	21	18	16	14	14	14	13	13	13	12	12	12				
10	47	36	29	24	43	33	27	23	28	23	20	24	20	17	20	17	15	13	13	13	12	12	12	11	11	11				

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

	0°	45°	90°
0°	1537	1537	1537
5°	1539	1512	1522
10°	1524	1483	1472
15°	1503	1434	1396
20°	1476	1367	1302
25°	1447	1291	1211
30°	1409	1213	1096
35°	1372	1130	995
40°	1334	1044	880
45°	1290	948	774
50°	1245	851	672
55°	1197	748	573
60°	1142	640	472
65°	1079	530	425
70°	1002	428	385
75°	906	377	350
80°	766	317	304
85°	536	212	229

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 90°  
 Vertical Angle: 90°  
 Luminance: 1430 cd/sqm



TEST NUMBER: P905437

CATALOG NUMBER: DFN2DIP-HX4F0-050D060US835-RLFL

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	193.7	2.0
10°-20°	531.7	5.6
20°-30°	746.5	7.8
30°-40°	813.7	8.5
40°-50°	747.9	7.8
50°-60°	587.3	6.1
60°-70°	382.3	4.0
70°-80°	196.8	2.1
80°-90°	55.6	0.6
90°-100°	117.4	1.2
100°-110°	373.1	3.9
110°-120°	638.5	6.7
120°-130°	839.7	8.8
130°-140°	942.5	9.9
140°-150°	924.2	9.7
150°-160°	775.3	8.1
160°-170°	514.2	5.4
170°-180°	179.7	1.9
0°-30°	1471.8	15.4
0°-40°	2285.5	23.9
0°-60°	3620.7	37.9
0°-90°	4255.4	44.5
90°-120°	1129.0	11.8
90°-150°	3835.4	40.1
90°-180°	5305.0	55.5
0°-180°	9560.0	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	2066	2066	2066	2066	2066	
5°	2066	2057	2033	2050	2044	196
15°	1966	1945	1881	1846	1827	554
25°	1784	1724	1601	1524	1496	821
35°	1537	1442	1277	1160	1118	962
45°	1257	1131	935	802	757	971
55°	956	810	608	496	460	854
65°	645	494	325	262	256	640
75°	344	213	150	136	135	364
85°	80	41	36	36	36	92
90°	2	21	56	53	54	9
95°	84	100	102	102	100	93
105°	344	349	352	355	355	363
115°	641	650	647	645	641	634
125°	932	946	942	936	935	833
135°	1205	1223	1226	1225	1220	932
145°	1463	1475	1484	1486	1479	914
155°	1673	1678	1683	1691	1686	770
165°	1820	1819	1819	1830	1822	514
175°	1894	1890	1886	1898	1888	180
180°	1898	1898	1898	1898	1898	



TEST NUMBER: P905437

CATALOG NUMBER: DFN2DIP-HX4F0-050D060US835-RLFL

**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	2066.5	2066.5	2066.5	2066.5	2066.5
2.5°	2075.8	2066.5	2045.9	2064.7	2060.9
5°	2066.5	2057.2	2032.8	2049.6	2044.1
7.5°	2049.6	2038.5	2012.3	2019.7	2010.3
10°	2027.2	2014.1	1976.8	1971.1	1959.9
12.5°	1999.2	1982.4	1931.8	1920.7	1900.0
15°	1965.5	1944.9	1881.4	1845.9	1827.2
17.5°	1926.2	1896.3	1817.7	1776.6	1746.6
20°	1881.4	1843.9	1750.4	1703.8	1662.5
22.5°	1832.8	1789.7	1681.2	1617.7	1589.7
25°	1784.1	1724.2	1600.8	1524.2	1496.0
27.5°	1726.2	1662.5	1526.0	1438.1	1395.1
30°	1664.5	1593.3	1443.7	1348.4	1297.8
32.5°	1604.6	1518.5	1365.3	1253.0	1206.2
35°	1537.3	1441.9	1277.4	1159.5	1118.3
37.5°	1471.8	1368.9	1195.1	1065.9	1019.3
40°	1402.6	1290.5	1108.9	976.2	927.6
42.5°	1331.6	1211.9	1023.0	884.5	837.9
45°	1256.8	1131.4	935.1	802.2	757.3
47.5°	1185.7	1053.0	851.0	718.1	677.0
50°	1107.2	974.4	768.7	639.5	600.4
52.5°	1030.4	890.1	690.1	566.7	531.2
55°	955.6	809.7	607.7	495.6	460.1
57.5°	879.0	729.4	534.9	430.2	400.2
60°	800.4	650.8	458.1	362.9	332.9
62.5°	723.8	574.2	392.7	303.0	288.1
65°	645.2	493.7	325.4	261.9	256.2
67.5°	570.4	418.9	261.9	230.0	224.4
70°	491.9	346.0	216.9	198.2	190.7
72.5°	417.1	278.6	181.4	166.5	162.7
75°	344.1	213.1	149.6	136.5	134.7
77.5°	271.2	151.4	117.9	110.3	106.5
80°	203.8	108.5	89.7	82.3	82.3
82.5°	142.1	73.0	61.7	57.9	57.9
85°	80.4	41.1	35.5	35.5	35.5
87.5°	30.0	14.9	14.9	13.1	13.1
90°	1.7	20.6	56.1	52.6	54.3
92.5°	35.5	48.1	49.8	51.5	51.5
95°	83.5	99.5	102.4	102.4	99.5
97.5°	139.0	153.9	160.2	160.2	160.2
100°	203.1	216.2	220.8	220.8	219.1
102.5°	270.6	280.3	286.6	288.3	286.6
105°	344.4	349.0	352.4	355.3	355.3
107.5°	417.6	424.5	424.5	425.6	417.6
110°	488.6	497.7	497.7	497.7	493.1



TEST NUMBER: P905437

CATALOG NUMBER: DFN2DIP-HX4F0-050D060US835-RLFL

**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	565.2	574.9	573.2	568.6	565.2
115°	640.7	649.9	647.0	645.3	640.7
117.5°	715.7	728.3	720.2	715.7	711.1
120°	791.2	803.8	791.2	791.2	786.0
122.5°	859.8	875.8	867.8	863.3	859.8
125°	931.9	946.2	941.6	936.5	934.8
127.5°	1002.3	1020.0	1013.7	1006.9	1002.3
130°	1068.1	1088.7	1085.8	1082.4	1076.1
132.5°	1141.9	1157.9	1159.0	1151.0	1146.4
135°	1205.4	1223.1	1226.5	1224.8	1220.2
137.5°	1276.3	1290.6	1293.5	1292.3	1285.5
140°	1338.7	1353.0	1361.0	1361.0	1354.7
142.5°	1402.7	1417.0	1421.6	1423.3	1417.0
145°	1463.4	1474.8	1484.0	1485.7	1479.4
147.5°	1517.7	1532.0	1538.9	1541.7	1535.4
150°	1573.8	1583.5	1589.8	1594.9	1589.8
152.5°	1623.5	1633.3	1641.3	1647.6	1641.3
155°	1673.3	1677.9	1683.0	1691.1	1685.9
157.5°	1716.2	1719.7	1722.5	1734.0	1726.0
160°	1754.6	1758.0	1759.7	1769.4	1762.6
162.5°	1790.0	1790.0	1791.7	1802.6	1794.6
165°	1820.3	1818.6	1818.6	1830.1	1822.1
167.5°	1847.8	1842.7	1842.7	1854.1	1846.1
170°	1868.4	1863.8	1862.1	1873.5	1863.8
172.5°	1882.7	1878.1	1876.4	1887.8	1878.1
175°	1894.1	1889.6	1886.1	1897.6	1887.8
177.5°	1900.4	1895.9	1892.4	1902.1	1892.4
180°	1897.6	1897.6	1897.6	1897.6	1897.6



TEST NUMBER: P905437  
 CATALOG NUMBER: DFN2DIP-HX4F0-050D060US835-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	8.10	8.89	9.11	9.91	11.26	4.08	4.86	5.09	5.88	7.23
	3H	9.78	10.48	10.80	11.51	12.88	5.26	5.97	6.28	6.99	8.36
	4H	10.39	11.05	11.42	12.08	13.46	5.71	6.38	6.75	7.41	8.78
	6H	10.81	11.42	11.85	12.45	13.84	6.03	6.65	7.08	7.68	9.07
	8H	10.93	11.51	11.98	12.56	13.95	6.12	6.71	7.17	7.75	9.14
	12H	10.99	11.55	12.04	12.59	14.00	6.17	6.72	7.22	7.76	9.17
4H	2H	8.12	8.78	9.16	9.81	11.19	4.67	5.33	5.71	6.36	7.74
	3H	9.94	10.50	10.99	11.55	12.94	6.02	6.57	7.06	7.62	9.02
	4H	10.63	11.14	11.69	12.19	13.60	6.56	7.07	7.62	8.12	9.53
	6H	11.15	11.58	12.21	12.65	14.06	6.98	7.42	8.04	8.49	9.90
	8H	11.32	11.73	12.39	12.79	14.22	7.11	7.52	8.17	8.58	10.00
	12H	11.42	11.78	12.50	12.86	14.29	7.17	7.54	8.26	8.62	10.05
8H	4H	10.60	11.01	11.66	12.07	13.49	6.84	7.25	7.90	8.31	9.73
	6H	11.17	11.50	12.25	12.60	14.03	7.36	7.69	8.45	8.80	10.22
	8H	11.38	11.68	12.48	12.76	14.20	7.55	7.85	8.64	8.93	10.37
	12H	11.52	11.78	12.62	12.86	14.34	7.67	7.93	8.77	9.01	10.49
12H	4H	10.55	10.92	11.63	11.99	13.42	6.84	7.21	7.92	8.29	9.72
	6H	11.14	11.44	12.23	12.52	13.96	7.41	7.70	8.50	8.79	10.23
	8H	11.36	11.62	12.46	12.70	14.18	7.62	7.88	8.71	8.96	10.44