

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: P928320

Luminaire Tested: DFN2DIP-HX4F0-080D060US927-FLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P928320
REPORT IS A COMBINATION OF REPORTS P900863 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-080D060US927-FLLONL
Description: 4 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

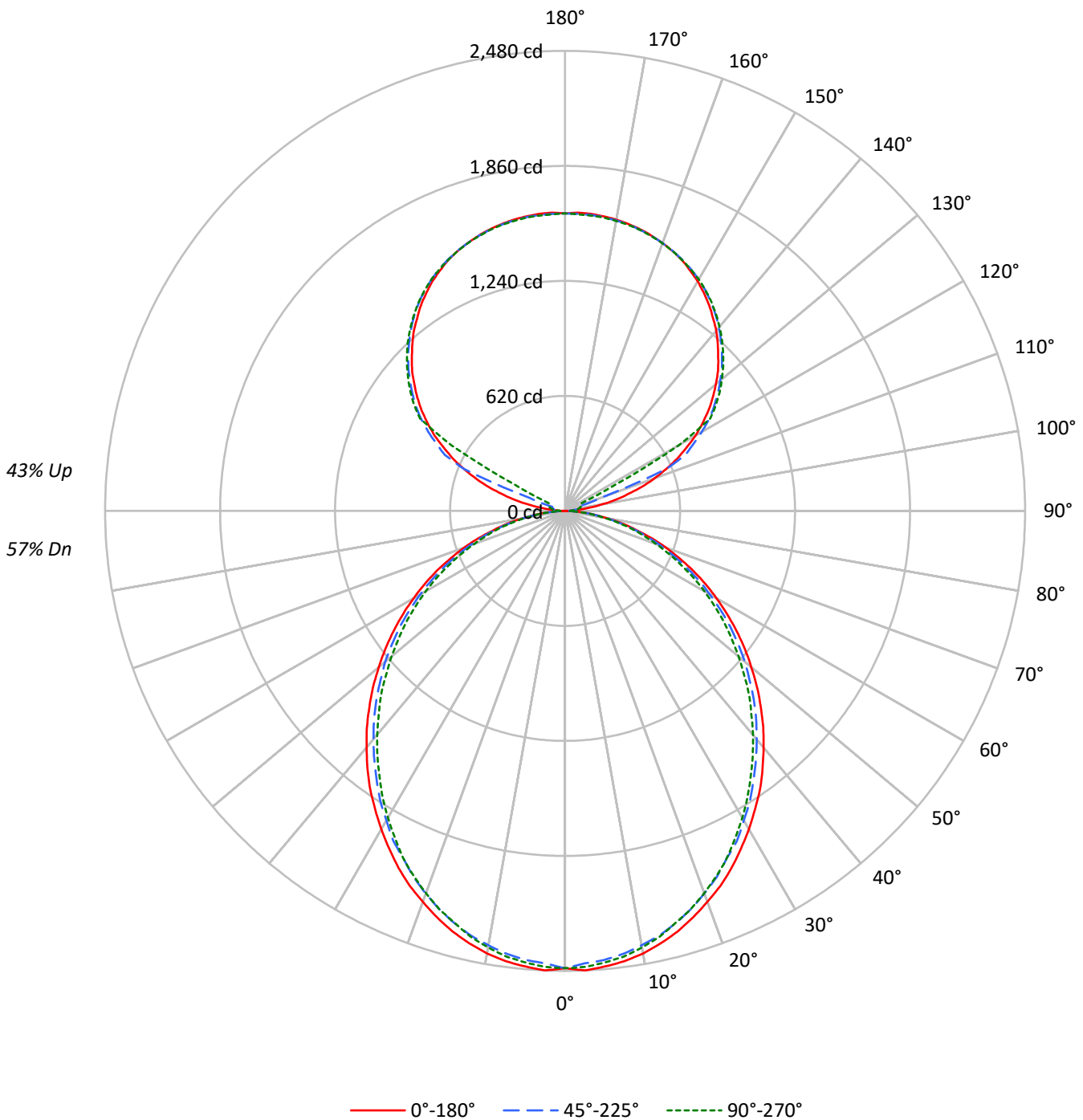
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 10977.1 lumens
Efficiency: N/A
Efficacy: 90.9 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: General Diffuse

Input Watts (W): 120.7
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9613
Total Harmonic Distortion (THDi): 0.083
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P928320
CATALOG NUMBER: DFN2DIP-HX4F0-080D060US927-FLLONL

Luminous Intensity Polar Plot





TEST NUMBER: P928320

CATALOG NUMBER: DFN2DIP-HX4F0-080D060US927-FLLONL

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	109	109	109	109	101	101	101	101	87	87	87	74	74	74	63	63	63	57	57	57	57
1	99	95	91	88	92	89	85	82	77	74	72	66	64	62	55	54	53	48	48	48	48
2	91	83	77	72	84	77	72	67	67	63	59	58	55	52	49	47	45	40	40	40	40
3	83	73	66	60	77	68	62	56	59	54	50	51	47	44	43	40	38	34	34	34	34
4	76	65	57	50	70	61	53	48	53	47	43	45	41	38	39	35	33	29	29	29	29
5	69	58	49	43	64	54	47	41	47	41	37	41	36	33	35	31	29	26	26	26	26
6	64	52	44	38	59	49	41	36	43	37	32	37	32	29	32	28	25	22	22	22	22
7	59	47	39	33	55	44	37	32	39	33	28	34	29	25	29	25	22	20	20	20	20
8	55	43	35	29	51	40	33	28	35	29	25	31	26	23	27	23	20	18	18	18	18
9	51	39	31	26	48	37	30	25	32	27	23	28	24	20	25	21	18	16	16	16	16
10	48	36	28	24	45	34	27	22	30	24	20	26	22	18	23	19	17	15	15	15	15

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1833	1833	1833
5°	1836	1808	1820
10°	1822	1784	1795
15°	1795	1754	1757
20°	1759	1714	1718
25°	1723	1665	1672
30°	1678	1620	1614
35°	1635	1567	1553
40°	1583	1513	1495
45°	1531	1459	1435
50°	1473	1402	1366
55°	1414	1336	1303
60°	1346	1259	1230
65°	1272	1178	1145
70°	1178	1080	1052
75°	1048	962	967
80°	892	813	805
85°	647	554	535

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 1531 cd/sqm



TEST NUMBER: P928320

CATALOG NUMBER: DFN2DIP-HX4F0-080D060US927-FLLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	232.0	2.1
10°-20°	652.9	5.9
20°-30°	959.5	8.7
30°-40°	1114.4	10.2
40°-50°	1113.0	10.1
50°-60°	970.5	8.8
60°-70°	717.4	6.5
70°-80°	405.9	3.7
80°-90°	110.0	1.0
90°-100°	52.9	0.5
100°-110°	197.1	1.8
110°-120°	522.8	4.8
120°-130°	867.2	7.9
130°-140°	921.1	8.4
140°-150°	856.1	7.8
150°-160°	688.3	6.3
160°-170°	443.5	4.0
170°-180°	152.6	1.4
0°-30°	1844.4	16.8
0°-40°	2958.8	27.0
0°-60°	5042.2	45.9
0°-90°	6275.5	57.2
90°-120°	772.9	7.0
90°-150°	3417.2	31.1
90°-180°	4702.0	42.8
0°-180°	10977.1	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2465	2465	2465	2465	2465	
5°	2465	2456	2430	2449	2444	234
15°	2347	2333	2302	2312	2300	661
25°	2124	2105	2065	2070	2065	977
35°	1832	1809	1771	1757	1745	1144
45°	1491	1475	1439	1413	1404	1151
55°	1128	1114	1086	1057	1046	1009
65°	761	747	723	702	690	752
75°	398	394	382	368	372	425
85°	97	95	93	85	83	108
90°	1	14	23	29	31	10
95°	75	37	45	51	50	89
105°	353	388	71	84	88	377
115°	667	687	716	179	95	657
125°	943	959	981	989	992	841
135°	1168	1186	1196	1208	1206	902
145°	1354	1353	1373	1381	1375	847
155°	1491	1481	1495	1502	1492	687
165°	1571	1564	1568	1576	1568	444
175°	1607	1599	1601	1610	1598	153
180°	1604	1604	1604	1604	1604	



TEST NUMBER: P928320

CATALOG NUMBER: DFN2DIP-HX4F0-080D060US927-FLLONL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2465.3	2465.3	2465.3	2465.3	2465.3
2.5°	2479.7	2467.9	2441.7	2465.3	2460.8
5°	2465.3	2456.1	2429.9	2448.8	2444.3
7.5°	2448.8	2434.7	2408.6	2427.6	2422.9
10°	2422.9	2406.3	2377.8	2396.7	2389.7
12.5°	2387.2	2373.1	2344.6	2356.4	2351.7
15°	2346.9	2332.8	2301.9	2311.5	2299.7
17.5°	2297.1	2283.0	2252.1	2263.9	2252.1
20°	2242.5	2228.5	2195.3	2202.3	2193.0
22.5°	2188.2	2166.8	2135.9	2135.9	2131.1
25°	2124.1	2105.2	2065.0	2069.5	2065.0
27.5°	2052.9	2036.3	2005.6	1998.5	1986.7
30°	1982.0	1962.8	1927.4	1920.4	1910.8
32.5°	1906.0	1891.9	1853.9	1839.6	1830.1
35°	1832.5	1808.9	1770.9	1756.6	1744.8
37.5°	1749.5	1728.1	1690.2	1673.6	1661.8
40°	1664.3	1645.1	1607.2	1586.1	1576.5
42.5°	1581.3	1562.1	1524.4	1500.5	1486.5
45°	1491.3	1474.6	1438.9	1413.0	1403.5
47.5°	1403.5	1386.9	1348.9	1322.7	1308.6
50°	1310.9	1299.1	1265.9	1232.7	1220.9
52.5°	1220.9	1204.2	1173.6	1147.4	1130.8
55°	1128.5	1114.2	1085.8	1057.4	1045.5
57.5°	1036.0	1024.2	993.2	964.8	955.2
60°	943.4	934.2	900.9	874.8	867.7
62.5°	853.4	836.8	813.1	789.5	780.0
65°	761.1	746.8	723.1	701.7	689.9
67.5°	666.2	654.2	633.0	616.5	606.9
70°	578.5	568.9	547.6	531.0	521.6
72.5°	488.4	478.9	467.0	450.5	443.4
75°	398.1	393.6	381.6	367.5	372.2
77.5°	317.7	308.1	303.3	296.3	289.2
80°	237.2	234.7	229.9	222.9	218.0
82.5°	161.3	161.3	159.0	149.4	149.4
85°	97.1	94.8	92.6	85.3	83.0
87.5°	42.8	38.0	33.2	26.1	23.7
90°	1.1	13.9	23.1	29.1	31.3
92.5°	29.1	24.4	27.8	30.2	31.3
95°	75.4	37.1	45.2	51.2	49.9
97.5°	135.7	40.6	59.1	62.7	63.8
100°	205.4	46.4	66.1	75.4	77.7
102.5°	282.0	279.7	68.5	81.2	84.7
105°	352.8	387.6	70.8	83.5	88.2
107.5°	435.2	464.1	73.2	85.9	90.5
110°	514.2	538.4	203.1	87.1	91.6



TEST NUMBER: P928320

CATALOG NUMBER: DFN2DIP-HX4F0-080D060US927-FLLONL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	588.4	609.2	589.5	89.3	92.9
115°	667.3	687.0	716.0	178.8	95.2
117.5°	735.7	758.9	778.7	612.7	308.6
120°	812.4	829.7	850.7	864.5	707.9
122.5°	877.2	895.8	919.1	926.0	927.3
125°	943.4	958.6	980.6	988.7	992.1
127.5°	1003.8	1020.0	1037.5	1049.1	1050.2
130°	1060.6	1079.3	1091.9	1104.8	1103.7
132.5°	1118.7	1133.8	1146.5	1157.0	1155.8
135°	1167.5	1186.1	1196.4	1208.1	1205.7
137.5°	1218.4	1232.4	1244.1	1255.6	1252.2
140°	1268.3	1277.7	1290.4	1300.9	1295.1
142.5°	1310.2	1318.4	1333.4	1342.6	1336.8
145°	1354.3	1353.1	1372.8	1380.9	1375.1
147.5°	1392.5	1389.0	1408.7	1414.5	1410.0
150°	1429.7	1421.6	1440.2	1447.1	1441.3
152.5°	1461.0	1451.7	1469.1	1476.1	1468.0
155°	1491.2	1480.8	1494.7	1501.6	1492.4
157.5°	1515.6	1506.3	1516.8	1524.9	1515.6
160°	1536.5	1529.4	1536.5	1543.4	1535.3
162.5°	1554.9	1548.0	1553.8	1562.0	1551.5
165°	1571.2	1564.4	1567.8	1575.9	1567.8
167.5°	1584.0	1577.0	1580.6	1588.8	1578.2
170°	1594.5	1587.5	1589.9	1597.9	1587.5
172.5°	1601.4	1594.5	1596.8	1605.0	1594.5
175°	1607.2	1599.0	1601.4	1609.5	1597.9
177.5°	1609.5	1601.4	1602.6	1610.8	1600.3
180°	1603.7	1603.7	1603.7	1603.7	1603.7



TEST NUMBER: P928320
 CATALOG NUMBER: DFN2DIP-HX4F0-080D060US927-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	10.02	10.94	10.91	11.86	13.02	9.58	10.51	10.48	11.43	12.59
	3H	11.68	12.52	12.59	13.44	14.63	11.21	12.04	12.11	12.97	14.16
	4H	12.27	13.06	13.19	13.99	15.19	11.80	12.59	12.72	13.52	14.72
	6H	12.68	13.40	13.61	14.34	15.55	12.20	12.93	13.13	13.86	15.07
	8H	12.78	13.48	13.72	14.43	15.64	12.31	13.00	13.25	13.95	15.16
	12H	12.84	13.49	13.78	14.44	15.68	12.35	13.01	13.30	13.96	15.19
4H	2H	10.49	11.27	11.41	12.20	13.40	10.14	10.93	11.07	11.86	13.06
	3H	12.36	13.02	13.30	13.98	15.19	11.97	12.62	12.90	13.58	14.80
	4H	13.08	13.68	14.02	14.63	15.87	12.67	13.27	13.62	14.23	15.46
	6H	13.60	14.12	14.56	15.09	16.33	13.19	13.71	14.15	14.68	15.92
	8H	13.75	14.23	14.71	15.20	16.46	13.34	13.82	14.30	14.79	16.04
	12H	13.83	14.26	14.81	15.25	16.51	13.40	13.84	14.38	14.83	16.09
8H	4H	13.28	13.76	14.24	14.73	15.99	12.92	13.40	13.88	14.37	15.63
	6H	13.92	14.32	14.90	15.33	16.58	13.55	13.95	14.54	14.97	16.22
	8H	14.14	14.49	15.13	15.49	16.76	13.77	14.12	14.76	15.12	16.39
	12H	14.27	14.59	15.27	15.58	16.90	13.89	14.20	14.89	15.19	16.51
12H	4H	13.27	13.71	14.25	14.69	15.95	12.92	13.35	13.90	14.34	15.60
	6H	13.95	14.30	14.94	15.30	16.57	13.59	13.95	14.59	14.95	16.22
	8H	14.19	14.50	15.19	15.50	16.82	13.83	14.15	14.83	15.14	16.46