

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: P928284

Luminaire Tested: DFN2DIP-HX4F0-070D060US927-FLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P928284
REPORT IS A COMBINATION OF REPORTS P900861 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-070D060US927-FLLONL
Description: 4 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

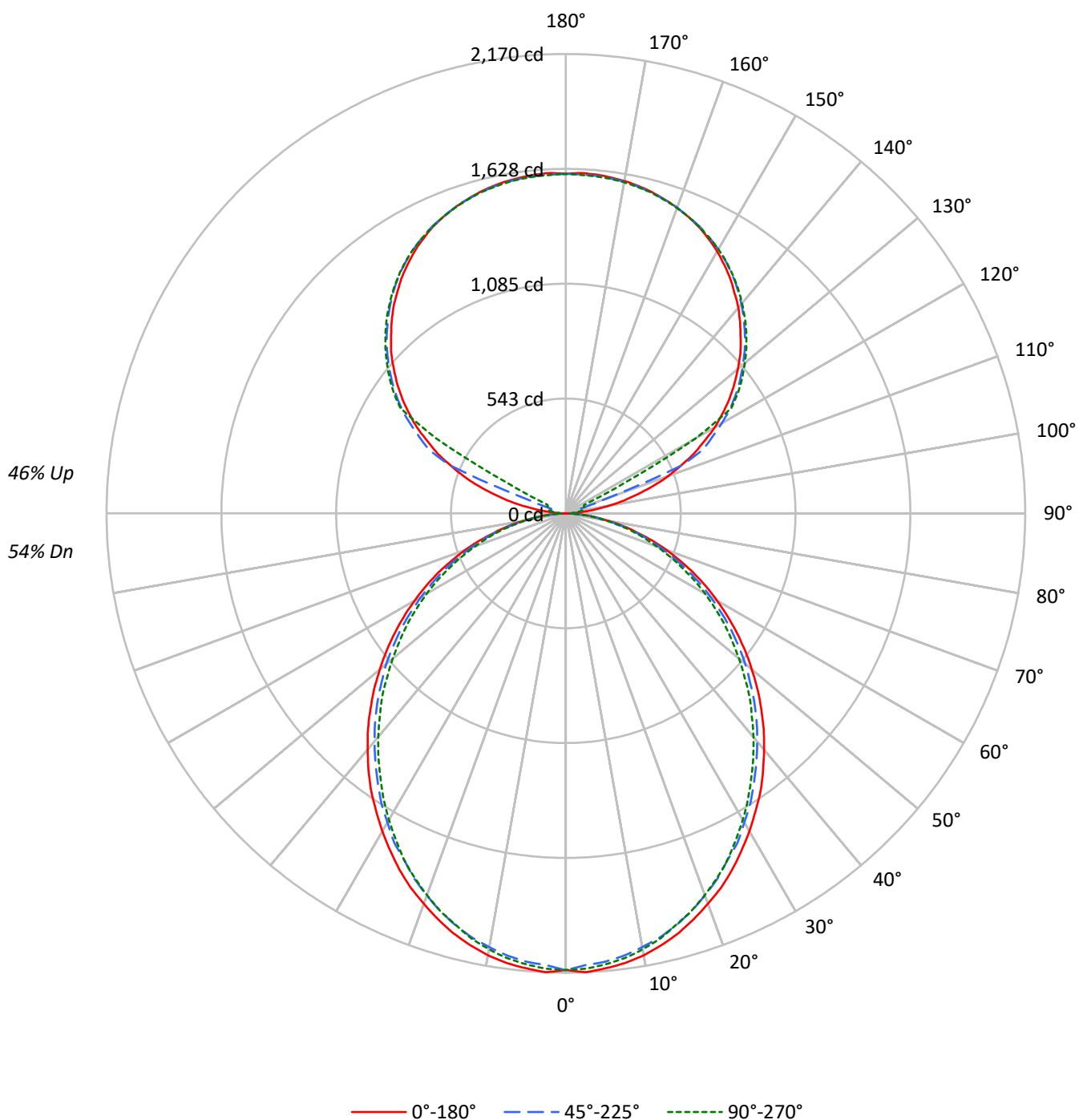
Lumens per Lamp: N/A
Luminaire Lumens: 10193.1 lumens
Efficiency: N/A
Efficacy: 92.4 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 110.3
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

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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	108	108	108	108	100	100	100	100	85	85	85	72	72	72	60	60	60
1	99	94	90	87	91	88	84	81	75	73	70	63	62	60	53	52	50
2	90	82	76	71	83	77	71	67	66	62	58	56	53	50	46	44	42
3	82	72	65	59	76	67	61	56	58	53	49	49	46	42	41	38	36
4	75	64	56	50	69	60	53	47	52	46	42	44	40	36	37	34	31
5	69	57	49	43	64	53	46	41	46	40	36	39	35	32	33	30	27
6	63	51	43	37	59	48	41	35	42	36	31	36	31	28	30	27	24
7	59	46	38	33	54	43	36	31	38	32	28	32	28	24	27	24	21
8	54	42	34	29	50	39	32	28	34	29	25	30	25	22	25	22	19
9	51	38	31	26	47	36	29	25	32	26	22	27	23	20	23	20	17
10	47	35	28	23	44	33	27	22	29	24	20	25	21	18	22	18	16

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1604	1604	1604
5°	1607	1582	1592
10°	1594	1561	1571
15°	1571	1535	1537
20°	1539	1500	1503
25°	1508	1457	1463
30°	1468	1418	1412
35°	1431	1371	1359
40°	1385	1324	1308
45°	1339	1276	1256
50°	1289	1227	1195
55°	1237	1169	1140
60°	1178	1101	1077
65°	1113	1031	1002
70°	1031	945	921
75°	917	842	846
80°	780	711	704
85°	567	485	468

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
Vertical Angle: 45°
Luminance: 1339 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	203.0	2.0
10°-20°	571.3	5.6
20°-30°	839.5	8.2
30°-40°	975.1	9.6
40°-50°	973.8	9.6
50°-60°	849.2	8.3
60°-70°	627.7	6.2
70°-80°	355.2	3.5
80°-90°	96.6	0.9
90°-100°	52.9	0.5
100°-110°	197.1	1.9
110°-120°	522.8	5.1
120°-130°	867.2	8.5
130°-140°	921.1	9.0
140°-150°	856.1	8.4
150°-160°	688.3	6.8
160°-170°	443.5	4.4
170°-180°	152.6	1.5
0°-30°	1613.8	15.8
0°-40°	2588.9	25.4
0°-60°	4411.9	43.3
0°-90°	5491.4	53.9
90°-120°	772.9	7.6
90°-150°	3417.2	33.5
90°-180°	4702.0	46.1
0°-180°	10193.1	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2157	2157	2157	2157	2157	
5°	2157	2149	2126	2143	2139	205
15°	2054	2041	2014	2022	2012	578
25°	1859	1842	1807	1811	1807	855
35°	1604	1583	1550	1537	1527	1001
45°	1305	1290	1259	1236	1228	1007
55°	988	975	950	925	915	883
65°	666	653	633	614	604	658
75°	348	344	334	322	326	372
85°	85	83	81	75	73	95
90°	1	14	23	29	31	9
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	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2157.2	2157.2	2157.2	2157.2	2157.2
2.5°	2169.8	2159.4	2136.5	2157.2	2153.2
5°	2157.2	2149.1	2126.2	2142.7	2138.7
7.5°	2142.7	2130.3	2107.4	2124.2	2120.0
10°	2120.0	2105.5	2080.6	2097.1	2091.0
12.5°	2088.7	2076.5	2051.6	2061.9	2057.7
15°	2053.6	2041.2	2014.1	2022.5	2012.2
17.5°	2009.9	1997.7	1970.6	1981.0	1970.6
20°	1962.2	1949.9	1920.8	1927.0	1918.9
22.5°	1914.7	1896.0	1868.9	1868.9	1864.7
25°	1858.6	1842.0	1806.9	1810.8	1806.9
27.5°	1796.3	1781.8	1754.9	1748.7	1738.4
30°	1734.2	1717.5	1686.5	1680.3	1671.9
32.5°	1667.7	1655.4	1622.2	1609.7	1601.3
35°	1603.5	1582.8	1549.5	1537.0	1526.7
37.5°	1530.9	1512.2	1478.9	1464.4	1454.0
40°	1456.3	1439.5	1406.3	1387.8	1379.4
42.5°	1383.6	1366.9	1333.9	1313.0	1300.6
45°	1304.8	1290.3	1259.0	1236.4	1228.0
47.5°	1228.0	1213.5	1180.2	1157.3	1145.1
50°	1147.1	1136.7	1107.6	1078.6	1068.2
52.5°	1068.2	1053.8	1026.9	1004.0	989.4
55°	987.5	975.0	950.1	925.2	914.8
57.5°	906.5	896.1	869.1	844.2	835.9
60°	825.5	817.3	788.4	765.5	759.3
62.5°	746.7	732.2	711.5	690.9	682.5
65°	666.0	653.4	632.7	614.0	603.7
67.5°	583.0	572.5	553.9	539.4	531.0
70°	506.2	497.9	479.1	464.6	456.4
72.5°	427.4	419.0	408.7	394.2	388.0
75°	348.4	344.4	333.8	321.6	325.7
77.5°	278.0	269.6	265.4	259.2	253.1
80°	207.5	205.4	201.2	195.0	190.8
82.5°	141.1	141.1	139.1	130.8	130.8
85°	85.0	83.0	81.0	74.6	72.6
87.5°	37.4	33.3	29.1	22.9	20.7
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

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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

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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	9.27	10.16	10.19	11.10	12.32	8.83	9.73	9.76	10.67	11.89
	3H	10.93	11.73	11.86	12.68	13.92	10.46	11.26	11.39	12.21	13.45
	4H	11.52	12.28	12.47	13.24	14.48	11.05	11.81	11.99	12.76	14.01
	6H	11.92	12.62	12.88	13.58	14.85	11.45	12.15	12.41	13.11	14.37
	8H	12.03	12.70	13.00	13.67	14.93	11.55	12.22	12.52	13.20	14.46
	12H	12.08	12.71	13.05	13.69	14.97	11.60	12.23	12.57	13.20	14.49
4H	2H	9.73	10.49	10.69	11.45	12.70	9.39	10.15	10.34	11.10	12.35
	3H	11.60	12.24	12.57	13.22	14.49	11.21	11.84	12.17	12.83	14.09
	4H	12.32	12.90	13.29	13.88	15.16	11.91	12.49	12.89	13.47	14.76
	6H	12.84	13.34	13.82	14.34	15.62	12.43	12.93	13.41	13.93	15.21
	8H	12.99	13.46	13.98	14.45	15.75	12.58	13.04	13.56	14.04	15.34
	12H	13.06	13.49	14.07	14.50	15.80	12.64	13.06	13.65	14.08	15.38
8H	4H	12.52	12.99	13.51	13.98	15.28	12.16	12.63	13.15	13.62	14.92
	6H	13.15	13.54	14.17	14.58	15.88	12.79	13.18	13.80	14.22	15.51
	8H	13.38	13.72	14.40	14.74	16.06	13.01	13.35	14.03	14.37	15.69
	12H	13.51	13.81	14.54	14.83	16.19	13.12	13.43	14.15	14.44	15.80
12H	4H	12.51	12.93	13.51	13.94	15.25	12.15	12.58	13.16	13.59	14.89
	6H	13.18	13.53	14.21	14.55	15.87	12.83	13.17	13.85	14.20	15.51
	8H	13.43	13.73	14.45	14.75	16.11	13.07	13.37	14.10	14.39	15.75