

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: P928572

Luminaire Tested: DFN2DIP-HX4F0-060D060US930-FLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P928572
REPORT IS A COMBINATION OF REPORTS P900859 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-060D060US930-FLLONL
Description: 4 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

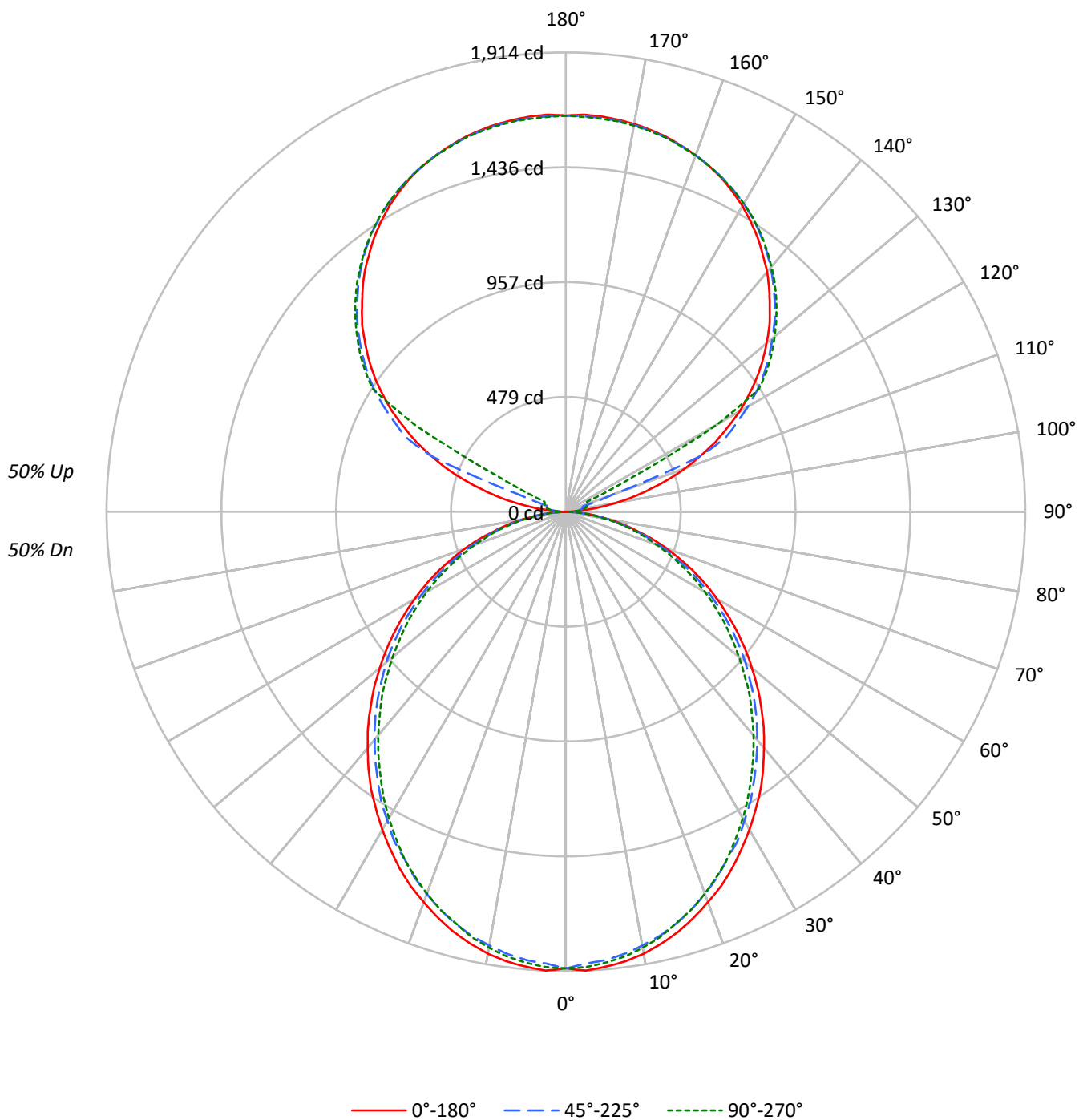
Lumens per Lamp: N/A
Luminaire Lumens: 9682.1 lumens
Efficiency: N/A
Efficacy: 98.6 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 98.2
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.099
Total Harmonic Distortion (THDi): 0.979
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	107	107	107	107	99	99	99	99	83	83	83	69	69	69	56	56	56
1	98	93	90	86	90	86	83	80	73	71	68	61	59	58	50	48	47
2	89	82	75	70	82	76	70	66	64	60	57	53	51	48	44	42	40
3	81	72	64	59	75	66	60	55	56	52	48	47	44	41	39	36	34
4	74	64	56	50	68	59	52	47	50	45	41	42	38	35	35	32	29
5	68	57	48	42	63	53	45	40	45	39	35	38	34	30	31	28	26
6	63	51	43	37	58	47	40	35	40	35	31	34	30	27	28	25	23
7	58	46	38	32	53	43	36	30	37	31	27	31	27	23	26	23	20
8	54	42	34	29	50	39	32	27	33	28	24	28	24	21	24	20	18
9	50	38	30	25	46	35	29	24	31	25	21	26	22	19	22	19	16
10	47	35	28	23	43	33	26	22	28	23	19	24	20	17	20	17	15

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1415	1415	1415
5°	1417	1395	1405
10°	1406	1377	1386
15°	1385	1354	1356
20°	1357	1323	1326
25°	1330	1285	1291
30°	1295	1250	1246
35°	1262	1209	1199
40°	1222	1167	1154
45°	1181	1126	1108
50°	1137	1082	1054
55°	1091	1031	1005
60°	1039	971	949
65°	982	909	883
70°	910	833	812
75°	809	743	747
80°	688	627	621
85°	499	427	413

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
Vertical Angle: 45°
Luminance: 1181 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	179.1	1.8
10°-20°	503.9	5.2
20°-30°	740.5	7.6
30°-40°	860.0	8.9
40°-50°	859.0	8.9
50°-60°	749.0	7.7
60°-70°	553.7	5.7
70°-80°	313.3	3.2
80°-90°	85.6	0.9
90°-100°	54.4	0.6
100°-110°	202.9	2.1
110°-120°	538.0	5.6
120°-130°	892.3	9.2
130°-140°	947.9	9.8
140°-150°	880.9	9.1
150°-160°	708.2	7.3
160°-170°	456.4	4.7
170°-180°	157.1	1.6
0°-30°	1423.5	14.7
0°-40°	2283.5	23.6
0°-60°	3891.5	40.2
0°-90°	4844.0	50.0
90°-120°	795.3	8.2
90°-150°	3516.4	36.3
90°-180°	4838.0	50.0
0°-180°	9682.1	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1903	1903	1903	1903	1903	
5°	1903	1896	1875	1890	1886	181
15°	1811	1800	1776	1784	1775	510
25°	1639	1625	1594	1597	1594	754
35°	1414	1396	1367	1356	1346	883
45°	1151	1138	1110	1091	1083	888
55°	871	860	838	816	807	779
65°	587	576	558	542	532	581
75°	307	304	294	284	287	328
85°	75	73	71	66	64	84
90°	1	14	24	30	32	9
95°	78	38	46	53	51	92
105°	363	399	73	86	91	388
115°	687	707	737	184	98	676
125°	971	986	1009	1017	1021	866
135°	1201	1220	1231	1243	1241	928
145°	1394	1392	1413	1421	1415	872
155°	1534	1524	1538	1545	1536	707
165°	1617	1610	1613	1622	1613	457
175°	1654	1646	1648	1656	1644	157
180°	1650	1650	1650	1650	1650	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1902.7	1902.7	1902.7	1902.7	1902.7
2.5°	1913.8	1904.7	1884.4	1902.7	1899.2
5°	1902.7	1895.5	1875.3	1889.9	1886.4
7.5°	1889.9	1879.1	1858.9	1873.6	1869.9
10°	1869.9	1857.1	1835.1	1849.7	1844.3
12.5°	1842.4	1831.5	1809.5	1818.7	1815.0
15°	1811.3	1800.4	1776.5	1784.0	1774.8
17.5°	1772.9	1762.0	1738.2	1747.2	1738.2
20°	1730.7	1719.9	1694.2	1699.7	1692.5
22.5°	1688.8	1672.3	1648.4	1648.4	1644.8
25°	1639.3	1624.8	1593.7	1597.2	1593.7
27.5°	1584.4	1571.6	1547.8	1542.5	1533.3
30°	1529.7	1514.8	1487.5	1482.1	1474.7
32.5°	1471.0	1460.2	1430.8	1419.7	1412.4
35°	1414.4	1396.1	1366.8	1355.7	1346.5
37.5°	1350.3	1333.7	1304.5	1291.6	1282.5
40°	1284.4	1269.7	1240.4	1224.1	1216.7
42.5°	1220.4	1205.6	1176.5	1158.1	1147.2
45°	1150.9	1138.1	1110.5	1090.6	1083.1
47.5°	1083.1	1070.3	1041.1	1020.9	1009.9
50°	1011.7	1002.6	977.0	951.3	942.2
52.5°	942.2	929.4	905.7	885.6	872.8
55°	871.0	859.9	838.0	816.1	806.9
57.5°	799.6	790.5	766.6	744.7	737.2
60°	728.1	720.9	695.4	675.1	669.7
62.5°	658.6	645.8	627.6	609.3	602.0
65°	587.4	576.4	558.1	541.6	532.4
67.5°	514.2	504.9	488.6	475.8	468.4
70°	446.5	439.1	422.6	409.8	402.6
72.5°	376.9	369.6	360.5	347.7	342.2
75°	307.3	303.8	294.5	283.6	287.3
77.5°	245.2	237.8	234.1	228.7	223.2
80°	183.0	181.1	177.4	172.0	168.3
82.5°	124.5	124.5	122.7	115.3	115.3
85°	74.9	73.2	71.4	65.8	64.1
87.5°	33.0	29.3	25.6	20.2	18.3
90°	1.1	14.3	23.8	29.9	32.2
92.5°	29.9	25.1	28.6	31.1	32.2
95°	77.6	38.1	46.5	52.6	51.3
97.5°	139.7	41.8	60.8	64.5	65.7
100°	211.4	47.8	68.1	77.6	80.0
102.5°	290.1	287.9	70.5	83.5	87.2
105°	363.0	398.9	72.9	85.9	90.8
107.5°	447.8	477.6	75.3	88.3	93.2
110°	529.1	554.0	209.0	89.6	94.3

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	605.5	626.9	606.6	91.9	95.6
115°	686.6	706.9	736.8	183.9	98.0
117.5°	757.1	780.9	801.3	630.5	317.6
120°	835.9	853.8	875.4	889.7	728.4
122.5°	902.7	921.8	945.8	952.9	954.2
125°	970.8	986.4	1009.1	1017.4	1021.0
127.5°	1032.9	1049.6	1067.6	1079.5	1080.7
130°	1091.4	1110.6	1123.6	1136.8	1135.7
132.5°	1151.2	1166.8	1179.8	1190.6	1189.4
135°	1201.4	1220.5	1231.1	1243.2	1240.8
137.5°	1253.8	1268.1	1280.2	1292.1	1288.6
140°	1305.1	1314.8	1327.9	1338.6	1332.7
142.5°	1348.3	1356.6	1372.1	1381.6	1375.6
145°	1393.6	1392.3	1412.6	1421.0	1415.1
147.5°	1432.9	1429.3	1449.6	1455.6	1450.9
150°	1471.2	1462.8	1482.0	1489.1	1483.1
152.5°	1503.4	1493.9	1511.7	1519.0	1510.6
155°	1534.5	1523.8	1538.1	1545.2	1535.7
157.5°	1559.6	1550.0	1560.8	1569.2	1559.6
160°	1581.1	1573.8	1581.1	1588.2	1579.9
162.5°	1600.1	1593.0	1598.9	1607.3	1596.6
165°	1616.9	1609.8	1613.3	1621.7	1613.3
167.5°	1630.0	1622.8	1626.5	1634.9	1624.1
170°	1640.8	1633.6	1636.0	1644.3	1633.6
172.5°	1647.9	1640.8	1643.2	1651.6	1640.8
175°	1653.9	1645.5	1647.9	1656.2	1644.3
177.5°	1656.2	1647.9	1649.2	1657.5	1646.8
180°	1650.3	1650.3	1650.3	1650.3	1650.3

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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	8.48	9.34	9.44	10.32	11.59	8.05	8.91	9.01	9.88	11.15
	3H	10.14	10.92	11.11	11.90	13.19	9.67	10.44	10.64	11.42	12.72
	4H	10.73	11.46	11.71	12.45	13.75	10.26	10.99	11.24	11.97	13.28
	6H	11.13	11.81	12.12	12.80	14.11	10.66	11.33	11.65	12.32	13.63
	8H	11.24	11.88	12.24	12.89	14.20	10.76	11.40	11.76	12.41	13.72
	12H	11.29	11.90	12.29	12.90	14.23	10.80	11.41	11.81	12.42	13.75
4H	2H	8.94	9.68	9.93	10.66	11.96	8.60	9.33	9.59	10.32	11.62
	3H	10.81	11.42	11.81	12.44	13.75	10.42	11.03	11.42	12.04	13.36
	4H	11.53	12.08	12.53	13.09	14.43	11.12	11.68	12.13	12.69	14.02
	6H	12.04	12.52	13.06	13.55	14.89	11.63	12.11	12.65	13.14	14.48
	8H	12.19	12.64	13.21	13.67	15.02	11.78	12.23	12.80	13.25	14.60
	12H	12.27	12.67	13.30	13.71	15.07	11.84	12.25	12.88	13.29	14.64
8H	4H	11.72	12.17	12.74	13.20	14.55	11.36	11.81	12.38	12.84	14.19
	6H	12.36	12.73	13.40	13.79	15.14	11.99	12.36	13.04	13.43	14.78
	8H	12.58	12.90	13.63	13.96	15.32	12.21	12.54	13.26	13.59	14.95
	12H	12.71	13.00	13.76	14.04	15.45	12.33	12.61	13.38	13.66	15.07
12H	4H	11.71	12.12	12.75	13.15	14.51	11.36	11.76	12.39	12.80	14.16
	6H	12.39	12.71	13.44	13.76	15.13	12.03	12.36	13.08	13.41	14.78
	8H	12.63	12.92	13.68	13.96	15.37	12.27	12.56	13.33	13.61	15.02

END OF REPORT