

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: P919093

Luminaire Tested: DFN2DIP-HX4F0-060D050US935-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P919093
REPORT IS A COMBINATION OF REPORTS P899322 AND P896188
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-060D050US935-RLLFLL
Description: 4 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

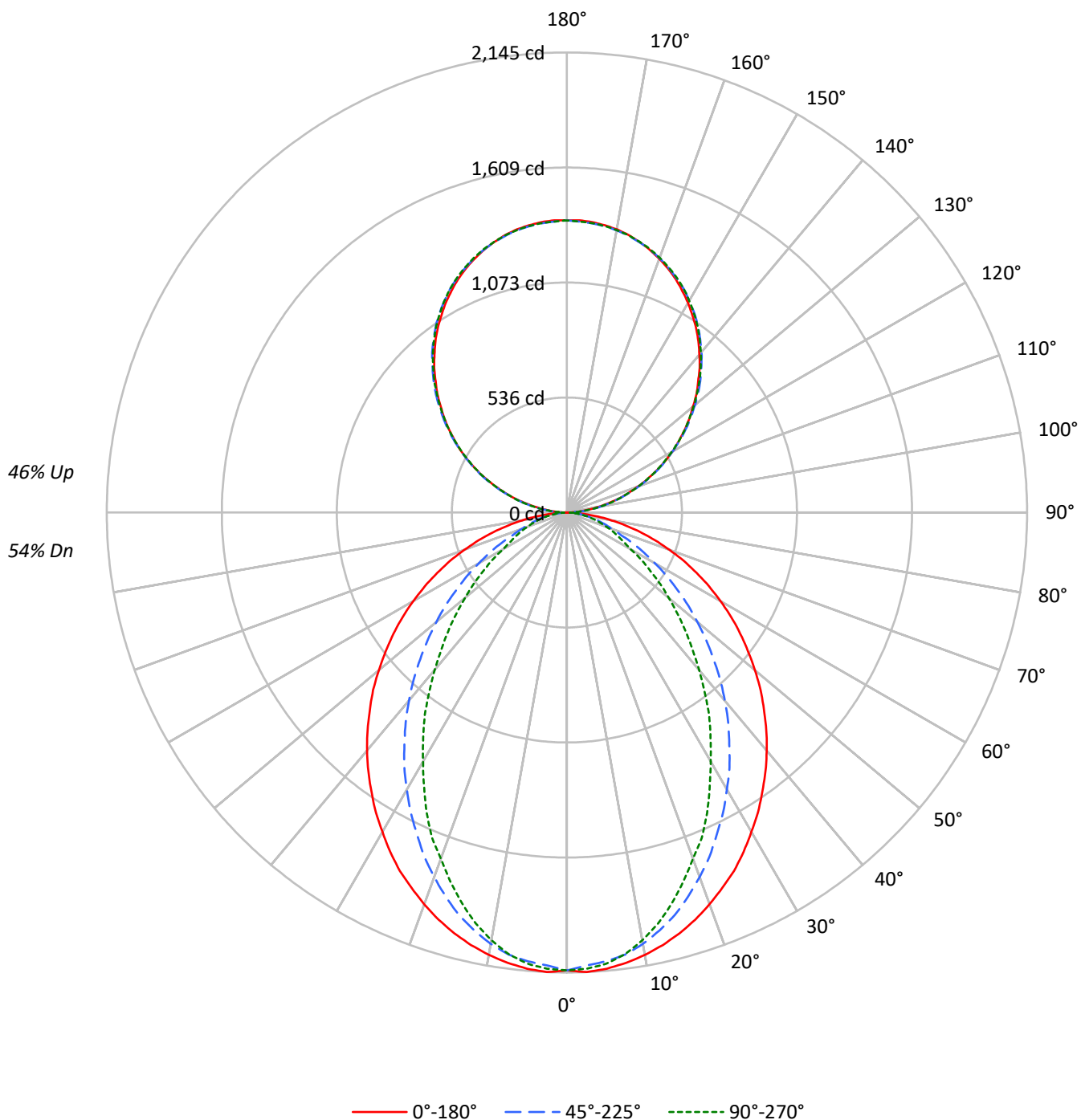
Lumens per Lamp: N/A
Luminaire Lumens: 8201.0 lumens
Efficiency: N/A
Efficacy: 99.0 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 82.8
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	108	108	108	108	100	100	100	100	85	85	85	72	72	72	59	59	59
1	99	95	91	88	92	88	85	82	76	73	71	64	62	61	53	52	51
2	91	84	78	73	84	78	73	68	67	63	60	57	54	52	48	46	44
3	83	74	67	61	77	69	63	58	59	55	51	51	47	44	43	40	38
4	76	66	58	52	71	61	55	49	53	48	44	46	42	38	38	36	33
5	70	59	51	45	65	55	48	43	48	42	38	41	37	34	35	32	29
6	65	53	45	39	60	50	43	37	43	38	34	37	33	30	32	29	26
7	60	48	40	35	56	45	38	33	39	34	30	34	30	27	29	26	23
8	56	44	36	31	52	41	34	30	36	31	27	31	27	24	27	24	21
9	52	40	33	28	48	38	31	27	33	28	24	29	25	22	25	22	19
10	49	37	30	25	45	35	28	24	31	25	22	27	23	20	23	20	18

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1588	1588	1588
5°	1590	1563	1572
10°	1575	1532	1521
15°	1553	1482	1442
20°	1525	1412	1345
25°	1495	1334	1252
30°	1456	1254	1133
35°	1418	1168	1028
40°	1378	1078	909
45°	1333	980	800
50°	1286	880	694
55°	1237	773	592
60°	1180	661	488
65°	1115	548	439
70°	1035	442	397
75°	936	390	362
80°	792	327	314
85°	553	220	237

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 1333 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	200.1	2.4
10°-20°	549.3	6.7
20°-30°	771.2	9.4
30°-40°	840.7	10.3
40°-50°	772.7	9.4
50°-60°	606.8	7.4
60°-70°	395.0	4.8
70°-80°	203.3	2.5
80°-90°	55.8	0.7
90°-100°	84.2	1.0
100°-110°	267.7	3.3
110°-120°	458.1	5.6
120°-130°	602.5	7.3
130°-140°	676.3	8.2
140°-150°	663.1	8.1
150°-160°	556.3	6.8
160°-170°	368.9	4.5
170°-180°	128.9	1.6
0°-30°	1520.7	18.5
0°-40°	2361.4	28.8
0°-60°	3740.9	45.6
0°-90°	4394.9	53.6
90°-120°	810.0	9.9
90°-150°	2751.9	33.6
90°-180°	3806.0	46.4
0°-180°	8201.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2135	2135	2135	2135	2135	
5°	2135	2126	2100	2118	2112	202
15°	2031	2009	1944	1907	1888	572
25°	1843	1782	1654	1575	1546	848
35°	1588	1490	1320	1198	1155	994
45°	1298	1169	966	829	782	1003
55°	987	837	628	512	475	882
65°	667	510	336	271	265	661
75°	356	220	154	141	139	376
85°	83	42	37	37	37	95
90°	1	15	40	38	39	8
95°	60	72	73	73	72	67
105°	247	250	253	255	255	261
115°	460	466	464	463	460	455
125°	669	679	676	672	671	598
135°	865	878	880	879	876	669
145°	1050	1058	1065	1066	1061	656
155°	1201	1204	1208	1213	1210	553
165°	1306	1305	1305	1313	1307	368
175°	1359	1356	1353	1362	1354	129
180°	1362	1362	1362	1362	1362	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2135.1	2135.1	2135.1	2135.1	2135.1
2.5°	2144.7	2135.1	2113.7	2133.2	2129.3
5°	2135.1	2125.5	2100.2	2117.7	2111.9
7.5°	2117.7	2106.2	2079.1	2086.7	2077.1
10°	2094.5	2080.9	2042.5	2036.5	2025.0
12.5°	2065.6	2048.1	1995.9	1984.4	1963.1
15°	2030.7	2009.4	1943.8	1907.1	1887.8
17.5°	1990.2	1959.2	1878.0	1835.6	1804.7
20°	1943.8	1905.0	1808.5	1760.3	1717.7
22.5°	1893.6	1849.1	1737.0	1671.4	1642.4
25°	1843.4	1781.5	1654.0	1574.9	1545.7
27.5°	1783.6	1717.7	1576.7	1485.8	1441.4
30°	1719.8	1646.1	1491.6	1393.2	1340.9
32.5°	1657.9	1568.9	1410.7	1294.6	1246.2
35°	1588.4	1489.8	1319.8	1198.0	1155.4
37.5°	1520.7	1414.3	1234.8	1101.3	1053.1
40°	1449.1	1333.3	1145.7	1008.6	958.4
42.5°	1375.8	1252.1	1057.0	913.9	865.7
45°	1298.5	1168.9	966.2	828.8	782.5
47.5°	1225.1	1088.0	879.3	741.9	699.5
50°	1143.9	1006.8	794.2	660.7	620.3
52.5°	1064.5	919.6	713.0	585.5	548.8
55°	987.3	836.6	627.9	512.1	475.4
57.5°	908.2	753.5	552.7	444.4	413.5
60°	827.0	672.4	473.4	375.0	344.0
62.5°	747.9	593.3	405.7	313.1	297.6
65°	666.7	510.1	336.2	270.6	264.7
67.5°	589.4	432.7	270.6	237.6	231.9
70°	508.2	357.5	224.0	204.8	197.0
72.5°	430.9	287.8	187.4	172.0	168.1
75°	355.5	220.2	154.5	141.0	139.2
77.5°	280.3	156.4	121.7	114.0	110.1
80°	210.5	112.1	92.6	85.1	85.1
82.5°	146.8	75.4	63.7	59.8	59.8
85°	83.0	42.4	36.7	36.7	36.7
87.5°	31.0	15.4	15.4	13.5	13.5
90°	1.2	14.8	40.2	37.8	39.0
92.5°	25.5	34.4	35.7	36.9	36.9
95°	59.9	71.5	73.4	73.4	71.5
97.5°	99.7	110.4	114.9	114.9	114.9
100°	145.7	155.2	158.4	158.4	157.2
102.5°	194.2	201.1	205.6	206.9	205.6
105°	247.1	250.4	252.9	254.9	254.9
107.5°	299.6	304.5	304.5	305.4	299.6
110°	350.5	357.1	357.1	357.1	353.8



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	405.5	412.5	411.3	408.0	405.5
115°	459.7	466.3	464.3	463.0	459.7
117.5°	513.5	522.5	516.8	513.5	510.2
120°	567.7	576.7	567.7	567.7	564.0
122.5°	616.9	628.4	622.7	619.4	616.9
125°	668.7	678.9	675.6	671.9	670.7
127.5°	719.1	731.8	727.4	722.4	719.1
130°	766.4	781.1	779.0	776.6	772.1
132.5°	819.3	830.8	831.6	825.9	822.6
135°	864.9	877.5	880.0	878.8	875.5
137.5°	915.8	926.0	928.1	927.2	922.3
140°	960.4	970.8	976.5	976.5	972.0
142.5°	1006.4	1016.8	1020.0	1021.2	1016.8
145°	1050.0	1058.2	1064.7	1066.0	1061.4
147.5°	1089.0	1099.2	1104.1	1106.2	1101.6
150°	1129.2	1136.2	1140.6	1144.4	1140.6
152.5°	1164.9	1171.9	1177.6	1182.2	1177.6
155°	1200.6	1203.8	1207.5	1213.3	1209.6
157.5°	1231.4	1233.8	1235.9	1244.1	1238.4
160°	1258.9	1261.4	1262.6	1269.5	1264.6
162.5°	1284.4	1284.4	1285.6	1293.4	1287.6
165°	1306.1	1304.8	1304.8	1313.1	1307.3
167.5°	1325.8	1322.1	1322.1	1330.3	1324.6
170°	1340.6	1337.3	1336.1	1344.3	1337.3
172.5°	1350.8	1347.5	1346.3	1354.5	1347.5
175°	1359.1	1355.7	1353.3	1361.5	1354.5
177.5°	1363.6	1360.3	1357.8	1364.8	1357.8
180°	1361.5	1361.5	1361.5	1361.5	1361.5

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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	9.08	9.94	10.01	10.89	12.11	5.05	5.92	5.99	6.86	8.08
	3H	10.76	11.53	11.71	12.49	13.73	6.25	7.02	7.19	7.97	9.22
	4H	11.37	12.10	12.33	13.06	14.31	6.70	7.43	7.66	8.39	9.64
	6H	11.80	12.47	12.77	13.43	14.70	7.03	7.69	7.99	8.66	9.93
	8H	11.92	12.56	12.90	13.54	14.81	7.12	7.75	8.09	8.73	10.00
	12H	11.99	12.59	12.97	13.57	14.86	7.16	7.77	8.14	8.74	10.03
4H	2H	9.10	9.83	10.07	10.79	12.04	5.65	6.38	6.62	7.34	8.59
	3H	10.94	11.54	11.91	12.53	13.80	7.01	7.61	7.98	8.60	9.87
	4H	11.63	12.18	12.61	13.17	14.46	7.56	8.11	8.54	9.09	10.39
	6H	12.15	12.62	13.14	13.63	14.92	7.98	8.46	8.98	9.46	10.75
	8H	12.33	12.77	13.32	13.77	15.07	8.11	8.56	9.11	9.56	10.86
	12H	12.42	12.82	13.44	13.84	15.15	8.18	8.58	9.20	9.60	10.91
8H	4H	11.60	12.04	12.60	13.04	14.35	7.84	8.29	8.84	9.28	10.59
	6H	12.17	12.54	13.19	13.58	14.88	8.36	8.73	9.39	9.77	11.07
	8H	12.39	12.71	13.42	13.74	15.06	8.56	8.88	9.59	9.91	11.23
	12H	12.53	12.81	13.56	13.83	15.20	8.68	8.96	9.71	9.98	11.35
12H	4H	11.56	11.95	12.57	12.97	14.28	7.85	8.25	8.86	9.26	10.57
	6H	12.15	12.47	13.17	13.50	14.82	8.41	8.74	9.44	9.76	11.09
	8H	12.37	12.65	13.40	13.67	15.04	8.63	8.91	9.66	9.93	11.30