

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: P910670

Luminaire Tested: DFN2DIP-HX2F0-050D040US850-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P910670
REPORT IS A COMBINATION OF REPORTS P899177 AND P896039
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX2F0-050D040US850-FLLFLL
Description: 2 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

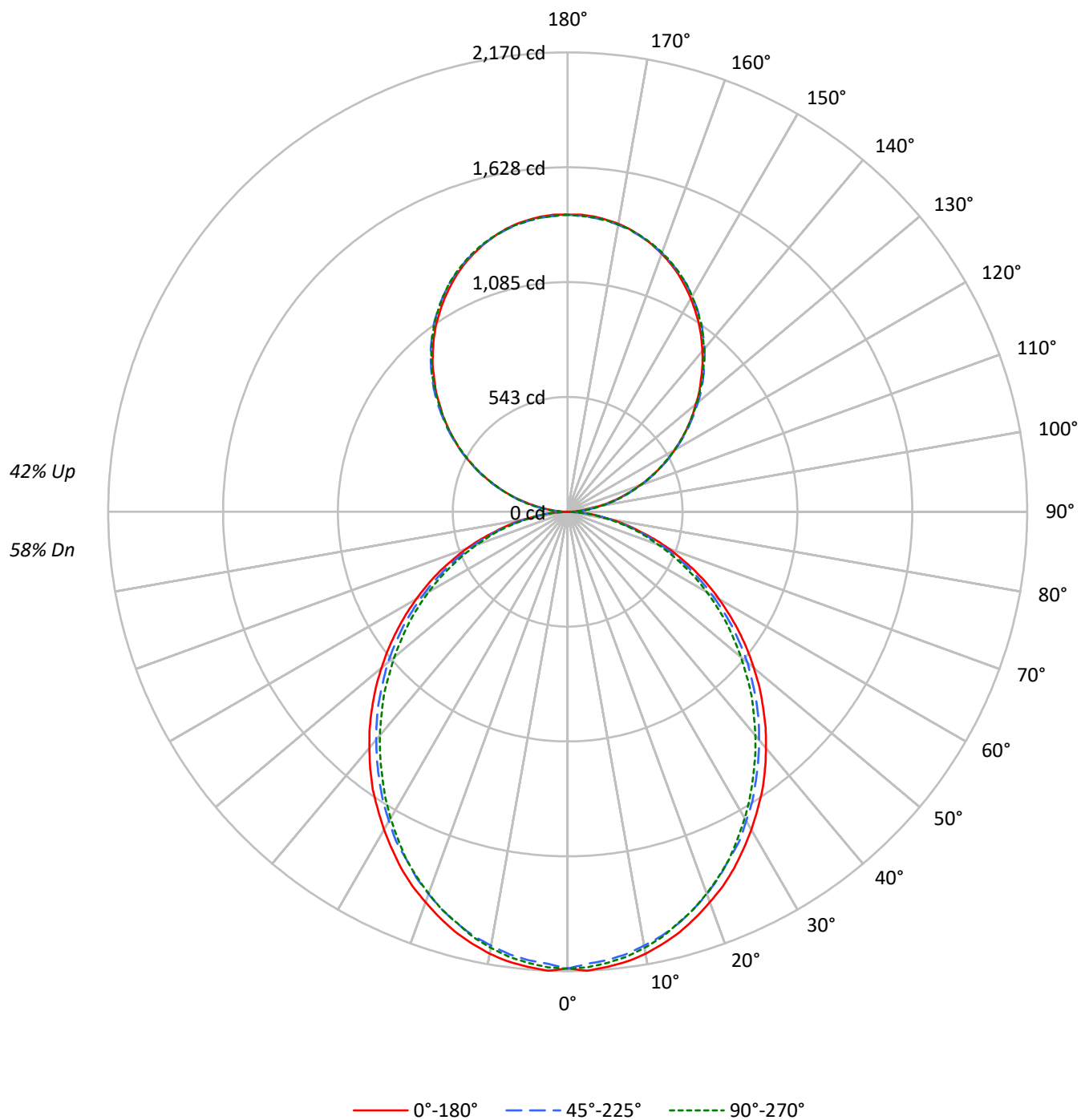
Lumens per Lamp: N/A
Luminaire Lumens: 9415.4 lumens
Efficiency: N/A
Efficacy: 122.4 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 1.99' x L: 2.3' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 76.9
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9789
Total Harmonic Distortion (THDi): 0.074
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	109	109	109	109	102	102	102	102	88	88	88	75	75	75	64	64	64
1	100	95	91	88	93	89	86	82	77	75	72	66	65	63	56	55	54
2	91	83	77	72	84	78	72	68	68	64	60	58	55	52	50	47	45
3	83	73	66	60	77	69	62	57	60	55	50	52	48	44	44	41	39
4	76	65	57	51	70	61	54	48	53	47	43	46	42	38	39	36	33
5	70	58	50	43	65	54	47	41	48	42	37	41	37	33	35	32	29
6	64	52	44	38	60	49	41	36	43	37	32	37	33	29	32	29	26
7	59	47	39	33	55	44	37	32	39	33	29	34	29	26	29	26	23
8	55	43	35	29	51	40	33	28	36	30	26	31	26	23	27	23	20
9	51	39	31	26	48	37	30	25	33	27	23	29	24	21	25	21	18
10	48	36	28	24	45	34	27	23	30	25	21	27	22	19	23	19	17

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	5084	5084	5084
5°	5084	5000	5037
10°	5034	4921	4960
15°	4952	4828	4844
20°	4844	4704	4726
25°	4736	4557	4590
30°	4603	4420	4421
35°	4476	4260	4243
40°	4322	4098	4072
45°	4167	3935	3897
50°	3998	3763	3695
55°	3820	3565	3507
60°	3618	3333	3292
65°	3396	3089	3038
70°	3115	2792	2764
75°	2728	2436	2497
80°	2259	1984	2016
85°	1532	1245	1246

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 4167 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	203.1	2.2
10°-20°	571.4	6.1
20°-30°	839.7	8.9
30°-40°	975.2	10.4
40°-50°	974.0	10.3
50°-60°	849.3	9.0
60°-70°	627.9	6.7
70°-80°	355.2	3.8
80°-90°	97.7	1.0
90°-100°	86.8	0.9
100°-110°	275.8	2.9
110°-120°	472.0	5.0
120°-130°	620.8	6.6
130°-140°	696.8	7.4
140°-150°	683.3	7.3
150°-160°	573.2	6.1
160°-170°	380.1	4.0
170°-180°	132.9	1.4
0°-30°	1614.1	17.1
0°-40°	2589.4	27.5
0°-60°	4412.7	46.9
0°-90°	5493.5	58.3
90°-120°	834.7	8.9
90°-150°	2835.6	30.1
90°-180°	3922.0	41.7
0°-180°	9415.4	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2158	2158	2158	2158	2158	
5°	2158	2150	2126	2143	2139	205
15°	2054	2042	2014	2023	2012	578
25°	1859	1842	1807	1811	1807	855
35°	1604	1583	1550	1537	1527	1001
45°	1305	1290	1259	1237	1228	1007
55°	988	975	950	925	915	883
65°	666	654	633	614	604	659
75°	348	344	334	322	326	372
85°	85	83	81	75	73	95
90°	1	15	42	39	40	9
95°	62	74	76	76	74	69
105°	255	258	260	263	263	269
115°	474	480	478	477	474	469
125°	689	700	696	692	691	616
135°	891	904	907	906	902	689
145°	1082	1090	1097	1098	1094	676
155°	1237	1240	1244	1250	1246	569
165°	1346	1345	1345	1353	1347	380
175°	1400	1397	1394	1403	1396	133
180°	1403	1403	1403	1403	1403	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2157.6	2157.6	2157.6	2157.6	2157.6
2.5°	2170.1	2159.8	2136.9	2157.6	2153.7
5°	2157.6	2149.5	2126.5	2143.0	2139.2
7.5°	2143.0	2130.7	2107.9	2124.6	2120.4
10°	2120.4	2105.9	2081.0	2097.5	2091.4
12.5°	2089.1	2076.8	2052.0	2062.3	2058.1
15°	2053.9	2041.6	2014.5	2022.9	2012.5
17.5°	2010.3	1998.0	1970.9	1981.2	1970.9
20°	1962.6	1950.3	1921.2	1927.3	1919.2
22.5°	1915.0	1896.3	1869.2	1869.2	1865.0
25°	1858.9	1842.4	1807.1	1811.1	1807.1
27.5°	1796.6	1782.1	1755.2	1749.0	1738.7
30°	1734.5	1717.8	1686.8	1680.6	1672.3
32.5°	1668.0	1655.7	1622.5	1609.9	1601.6
35°	1603.7	1583.1	1549.8	1537.3	1527.0
37.5°	1531.1	1512.5	1479.2	1464.7	1454.3
40°	1456.6	1439.8	1406.5	1388.0	1379.7
42.5°	1383.9	1367.2	1334.1	1313.2	1300.9
45°	1305.1	1290.5	1259.3	1236.6	1228.2
47.5°	1228.2	1213.7	1180.5	1157.6	1145.3
50°	1147.3	1136.9	1107.9	1078.8	1068.4
52.5°	1068.4	1053.9	1027.0	1004.2	989.7
55°	987.7	975.1	950.2	925.3	915.0
57.5°	906.6	896.3	869.2	844.4	836.0
60°	825.7	817.6	788.5	765.5	759.4
62.5°	746.9	732.4	711.6	690.9	682.6
65°	666.1	653.5	632.8	614.2	603.7
67.5°	583.1	572.6	554.1	539.5	531.1
70°	506.3	497.9	479.2	464.7	456.6
72.5°	427.5	419.1	408.8	394.2	388.0
75°	348.4	344.5	333.9	321.6	325.8
77.5°	278.0	269.6	265.5	259.3	253.2
80°	207.6	205.4	201.2	195.1	190.9
82.5°	141.1	141.1	139.1	130.8	130.8
85°	84.9	83.0	81.0	74.6	72.6
87.5°	37.4	33.3	29.1	22.8	20.7
90°	1.2	15.2	41.5	38.9	40.1
92.5°	26.2	35.5	36.8	38.0	38.0
95°	61.8	73.6	75.7	75.7	73.6
97.5°	102.8	113.8	118.4	118.4	118.4
100°	150.2	159.9	163.2	163.2	162.0
102.5°	200.1	207.3	211.9	213.1	211.9
105°	254.6	258.0	260.5	262.6	262.6
107.5°	308.7	313.8	313.8	314.6	308.7
110°	361.2	368.0	368.0	368.0	364.6



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	417.9	425.1	423.7	420.4	417.9
115°	473.7	480.5	478.3	477.1	473.7
117.5°	529.1	538.4	532.5	529.1	525.8
120°	585.0	594.2	585.0	585.0	581.1
122.5°	635.7	647.5	641.7	638.2	635.7
125°	689.0	699.6	696.2	692.3	691.1
127.5°	741.0	754.1	749.5	744.4	741.0
130°	789.6	804.9	802.8	800.3	795.6
132.5°	844.2	856.0	856.9	850.9	847.6
135°	891.2	904.3	906.8	905.5	902.2
137.5°	943.6	954.2	956.3	955.4	950.4
140°	989.7	1000.3	1006.2	1006.2	1001.5
142.5°	1037.1	1047.7	1051.0	1052.3	1047.7
145°	1081.9	1090.4	1097.1	1098.5	1093.8
147.5°	1122.1	1132.6	1137.7	1139.8	1135.2
150°	1163.6	1170.8	1175.4	1179.2	1175.4
152.5°	1200.4	1207.5	1213.5	1218.1	1213.5
155°	1237.1	1240.5	1244.3	1250.3	1246.4
157.5°	1268.9	1271.4	1273.5	1282.0	1276.0
160°	1297.2	1299.7	1301.0	1308.2	1303.1
162.5°	1323.4	1323.4	1324.7	1332.7	1326.8
165°	1345.9	1344.6	1344.6	1353.0	1347.1
167.5°	1366.2	1362.3	1362.3	1370.8	1364.8
170°	1381.4	1377.9	1376.7	1385.1	1377.9
172.5°	1391.9	1388.6	1387.2	1395.8	1388.6
175°	1400.4	1397.0	1394.5	1402.9	1395.8
177.5°	1405.1	1401.7	1399.1	1406.3	1399.1
180°	1402.9	1402.9	1402.9	1402.9	1402.9

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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	13.52	14.46	14.40	15.36	16.51	13.10	14.04	13.98	14.94	16.09
	3H	15.16	16.01	16.06	16.92	18.09	14.70	15.55	15.59	16.46	17.63
	4H	15.74	16.53	16.65	17.45	18.63	15.28	16.08	16.19	16.99	18.18
	6H	16.12	16.86	17.04	17.78	18.98	15.66	16.40	16.58	17.32	18.52
	8H	16.22	16.92	17.15	17.86	19.05	15.76	16.46	16.69	17.40	18.60
	12H	16.26	16.93	17.19	17.86	19.08	15.80	16.47	16.73	17.40	18.62
4H	2H	13.98	14.78	14.90	15.70	16.88	13.64	14.44	14.56	15.36	16.54
	3H	15.83	16.49	16.75	17.44	18.64	15.44	16.11	16.37	17.06	18.25
	4H	16.52	17.13	17.46	18.08	19.30	16.13	16.74	17.07	17.68	18.90
	6H	17.02	17.54	17.97	18.51	19.73	16.62	17.15	17.57	18.12	19.34
	8H	17.16	17.65	18.11	18.61	19.85	16.76	17.25	17.71	18.21	19.45
	12H	17.22	17.67	18.20	18.65	19.89	16.82	17.26	17.79	18.24	19.48
8H	4H	16.72	17.21	17.67	18.17	19.40	16.36	16.86	17.32	17.82	19.05
	6H	17.32	17.73	18.30	18.73	19.96	16.97	17.38	17.95	18.38	19.61
	8H	17.53	17.88	18.51	18.88	20.13	17.17	17.53	18.16	18.52	19.77
	12H	17.64	17.96	18.63	18.95	20.25	17.28	17.59	18.27	18.58	19.88
12H	4H	16.70	17.15	17.67	18.12	19.37	16.36	16.80	17.33	17.78	19.02
	6H	17.35	17.71	18.33	18.70	19.95	17.01	17.36	17.99	18.36	19.61
	8H	17.57	17.89	18.56	18.87	20.17	17.23	17.54	18.22	18.53	19.83